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JOURNAL OF THE EAST AFRICA NATURAL HISTORY SOCIETY AND CORYNDON MUSEUM

VOL. XXIV No. 4 (108)

January 1964

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(Published 14/2/64)

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EAST AFRICA NATURAL HISTORY SOCIETY AND CORYNDON MUSEUM

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References. These are usually abbreviated in the text and listed more fully in alphabetical order of authors at the end of the article. For example, in the text a book reference might be (Pinhey 1956: p.20). At the bottom of the contribution: Jackson, F.J., 1938. Birds of Kenya and Uganda. Pinhey, E.C.G., 1956. The Emperor Moths of Eastern Africa. J.E.Afr.Nat.Hist.Soc. XXIII No. 1. (98). With short articles it may not be worth making a list of references at the end, but the whole reference in the most abbreviated comprehensible form should then be inserted in the text.

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A KEY AND CHECK LIST TO KENYA ORCHIDS

By

G.C. Copley, E.M. Tweedie and E.W. Carroll

Drawings by E.M. Tweedie

SMITHSONIAN
INSTITUTION

APR 14 1964

Introduction

This key represents an attempt by three keen orchid-hunters to place before others equally ignorant of systematic botany what it is hoped will prove a fairly comprehensible way of identifying some of the orchids they will find in Kenya.

It may be as well to warn beginners in this hobby that though they will find few specimens spectacular enough to be worth a place in a fancier's orchid-house, they will come across many which, when in flower, well deserve an honoured position in any drawing-room.

We will have attained our object in constructing this artificial key if a few others are not only persuaded by it to share the enjoyment we derive from recognising, drawing and photographing, these plants, but if they also add to our knowledge of them by collecting and preserving new species.

The Botanist in Charge, E.A. Herbarium, Nairobi, will name specimens of orchids sent to him, and advise the beginner on the method of pickling and pressing orchid specimens.

The key has been revised by E.M. Tweedie up to September 1962, and her thanks are due to Mr. V.S. Summerhayes of the Herbarium, Royal Botanic Gardens, Kew, for all his kind help and advice. Also to the staff of the E.A. Herbarium for their help in many ways, especially with the check list; to Dr. F. Piers whose book "Orchids of East Africa" provided many items of information especially on areas east of the Rift; and to Mr. John Powis for the loan of plants.

A study of the East African orchids is still going on, and until that is published some orchid names used in this key are liable to be altered.

A short note on Orchids

General

Orchids are either terrestrial or epiphytic. Most of the terrestrial ones are green-leaved and they feed themselves like any ordinary plant. A few, however, are saprophytes; their leaves if any are colourless and more or less useless and they obtain their food by means of their roots from decaying vegetable matter. See Section No. 19.

The epiphytic orchids are mostly found on trees, sometimes on rocks, and they supply their needs from the air and the rain with their own internal mechanisms. They are not parasites like Loranthaceae and they do no harm to trees which are their hosts.

Our terrestrial orchids vary in size from a mere few inches high, like some species of Disperis to Eulophia porphyroglossa which may reach 12 feet. Among the epiphytes there are several species about 1 in. high but there are others like Vanilla which may climb to a height of 20 ft.

Roots. The roots of terrestrial orchids are either normal roots, not infrequently rhizomes, or even tubers, which may be either more or less globular or lobed. All orchids possess in their roots mycorrhiza, a fungus species of Rhizoctonea, which usually enters the root by the root hairs and orchid seeds develop a seedling naturally only in the presence of the root fungus. The epiphytes possess what are known as air-roots, the spongy outer layers of which absorb dew and rain and assist in the nourishment of the plants.

Stems. The stems of all terrestrial and some epiphytic orchids are normal stems like those of any other monocotyledonous plant, but some of the epiphytes have what are known as pseudo-bulbous stems. These may have only one internode or several. See Plate I. These pseudo-bulbs, or false bulbs, are reservoirs of food and water. They are of various shapes and sizes, but in the Kenya epiphytic orchids they are generally narrowly conical or elongated.

It is important to be able to distinguish between an ordinary stem and a pseudo-bulbous one with several internodes. The latter may be identified by its nodes being completely ringed and by having roots always at the base of the stem and never emerging at intervals from the sides of the stem. Make a careful study of all the drawings in Plate I.

Leaves. Orchid leaves, as far as we are concerned here, are of two kinds, the foliage leaves and the floral bracts. The latter are very insignificant parts of the plant, but, by their variation, in different species, they sometimes afford a most useful subsidiary means of identifying a species.

The foliage leaves of terrestrial orchids are of several shapes. A few species have large, round or oval basal leaves which lie flat on the ground. Many have leaves of ordinary leaf-shapes arranged alternately, but in some Disperis species the leaves are opposite each other, on the stems. Many, again, have grass-like leaves, some at the bottom of the stalk that bears the flowers and some on separate stems. These may be 'pleated' or flat.

Epiphytic orchids all have much the same sort of thick leathery, strap-shaped foliage leaves; but they vary in length, breadth and their distances apart. Also their tips may be entire or lobed, and the lobes may be symmetrical or not. One genus, Microcoelia, is leafless; while a number of pseudo-bulbous types with stems consisting of one internode only, have a solitary leaf at the apex of each pseudo-bulb.

Inflorescences. A very few species of epiphytes, e.g. some of the Tridactyles, produce their flowers singly and directly from their stems, but usually the flowers are produced together in an inflorescence.

As far as we need be concerned here, the types of inflorescences found are spikes and panicles. Technically, many orchids produce flowers in racemes. But in orchids the difference between a spike and a raceme consists in the presence or absence of a small length of stalk below the ovary; it is usually concealed by the bract and in any case is hard to distinguish, see note on the ovary. Therefore for the convenience of amateurs we have not distinguished between a raceme or a spike but refer to both forms as spikes. In spikes all



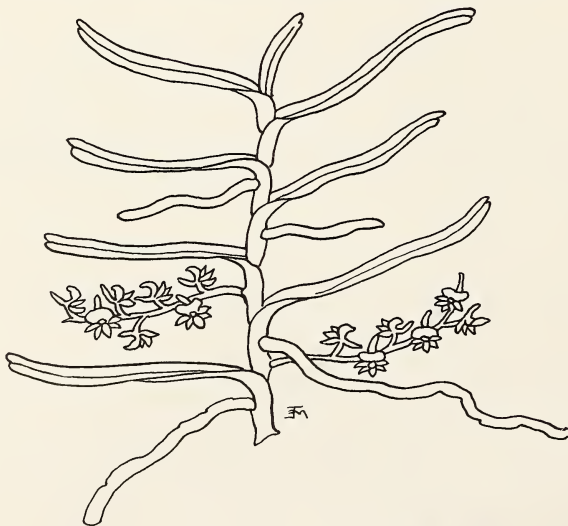
POLYSTACHYA BICARINATA
Pseudobulbous stem, one internode



POLYSTACHYA STRICTA
Pseudobulbous stem, one internode, panicle of flowers



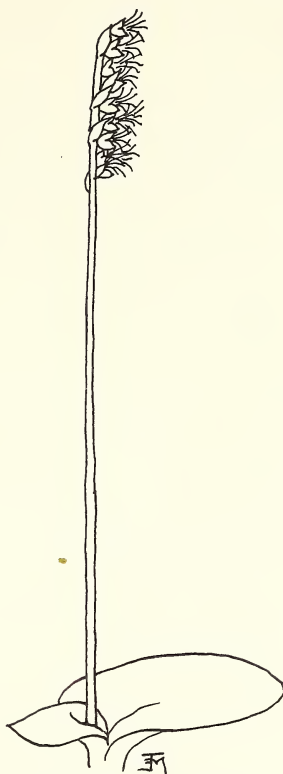
POLYSTACHYA SIMPLEX
Pseudobulbous stem, several internodes



DIAPHANANTHE XANTHOPOLLINIA
Ordinary stem, lateral flower spikes, leaves asymmetrically lobed



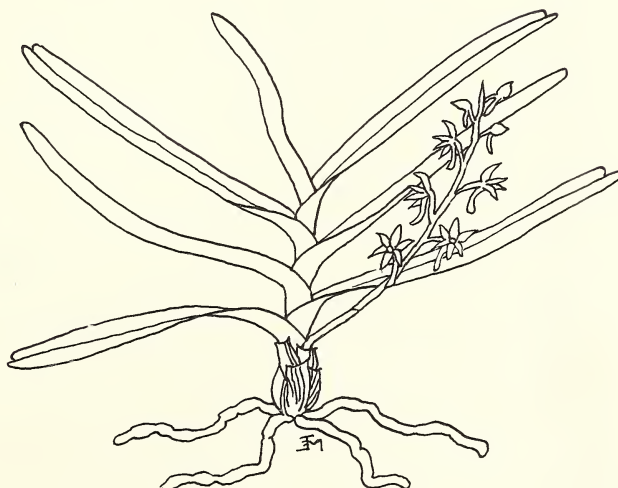
SATYRIUM SACCULATUM
Example of a close spike



HOLOTHRIX ELGONENSIS
Example of basal leaves



HABENARIA HUMILIOR
Example of open spike



RANGAERIS BRACHYCERAS
Ordinary stem, flower spike from base

the flowers are produced on a single, unbranched main stalk while in panicles the flower-bearing stalk is branched.

The spikes may be crowded, when the flowers are closely packed and touching each other; open or loose, when the flowers are some distance apart; or fairly crowded the intermediate stage between crowded and open. Plate II gives illustrations of the different types of inflorescence.

Flowers. The parts of orchid flowers referred to in the Sections and illustrated are:-

The bracts.

The ovary.

The sepals, there are three a lateral pair and an odd one.

The petals, there are three a lateral pair and an odd one called the 'lip'.

A more or less solid structure in the centre of the flower called the column. On this column the peculiar stamens, at the most two, or a stamen, and stigmas are situated. In all the African orchids there is only one stamen.

The Stigmatic Processes, what is probably our commonest genus, Habenaria, is characterised by having its stamen and its stigmas located on elongated arms or processes.

The spur, there may be one or two spurs, sometimes none.

The bracts. These are the small reduced, leaf-like structures, sometimes green, sometimes brown and scale-like, at the base of each ovary, or stalk plus ovary. The main points to notice about them are their colour and their length as compared with the ovary.

The ovary. The apparent stalk of the flower consists either of the ovary alone or of a short stalk and the ovary. Sometimes the stalk is so reduced that it is most difficult to tell whether there is one or not.

The ovary may be smooth or ribbed, sometimes triangular in section, as in Cyrtorchis, green or coloured; but the most important fact about it is that it may or may not be twisted on its axis through 180 degrees.

This means that, if it is not twisted, then the uppermost floral member is the odd petal or lip, while the bottom one is the odd sepal. If, on the other hand, the ovary is twisted, as is probably more often the case than not, then the position is reversed, the odd sepal being at the top and the lip at the bottom. When twisting does take place it does so as the flower is developing. See any spike in which the flowers at the base are open while those towards the apex are still in the bud stage.

The above must seem rather complicated. The illustrations, Plate III. should make the position clear.

It is of the utmost importance to memorise the positions particularly of the paired sepals and petals in twisted and non-twisted flowers as cases are fairly numerous when it is next to impossible to recognise, say the paired petals, unless one knows in

which part of the flower to look for them.

When difficulty is experienced in distinguishing the sepals from the petals, it is as well to examine the flower from the back. The three floral members nearest to the ovary are the sepals. If the reader wants puzzles in deciding which the various floral members are he should examine Satyrium sacculatum or a Disperis.

The Sepals. The sepals and petals may be very nearly alike or very different from each other in shape and colour. The sepals are usually smaller and less conspicuous than the petals, and the odd sepal may be larger or smaller than the pair. All three sepals are often green while the rest of the flower is coloured.

The Paired Petals. The paired petals, like the paired sepals, are invariably similar to each other, but they show great variety in shape and size. One of the Cypripediums, not a Kenya genus, has narrow, ribbon-like petals that are often a yard long.

The lip. The lip is the part of the flower which shows the greatest variety. Perhaps the simplest shapes are in a number of species where it is almost identical in shape and size to the paired petals; or in the genus Disa, where it is small and narrow, often almost thread-like.

In Plate IV there are illustrations of the lips of several Kenya species.

The Column. The column varies in size, shape and colour. One epiphytic species Aerangis rhodosticta is easily recognisable by its white flowers and bright red column.

The Stigmatic Processes. When examining Habenaria it will be seen that these processes show considerable variation in shape and size, sometimes they are green and sometimes white.

The Pollen Masses. It is not proposed to attempt here any description of the pollen masses or of the amazingly complicated processes involved in the fertilisation of orchids. Readers interested are referred to any fairly advanced textbook on botany or to Darwin's standard work on the subject.

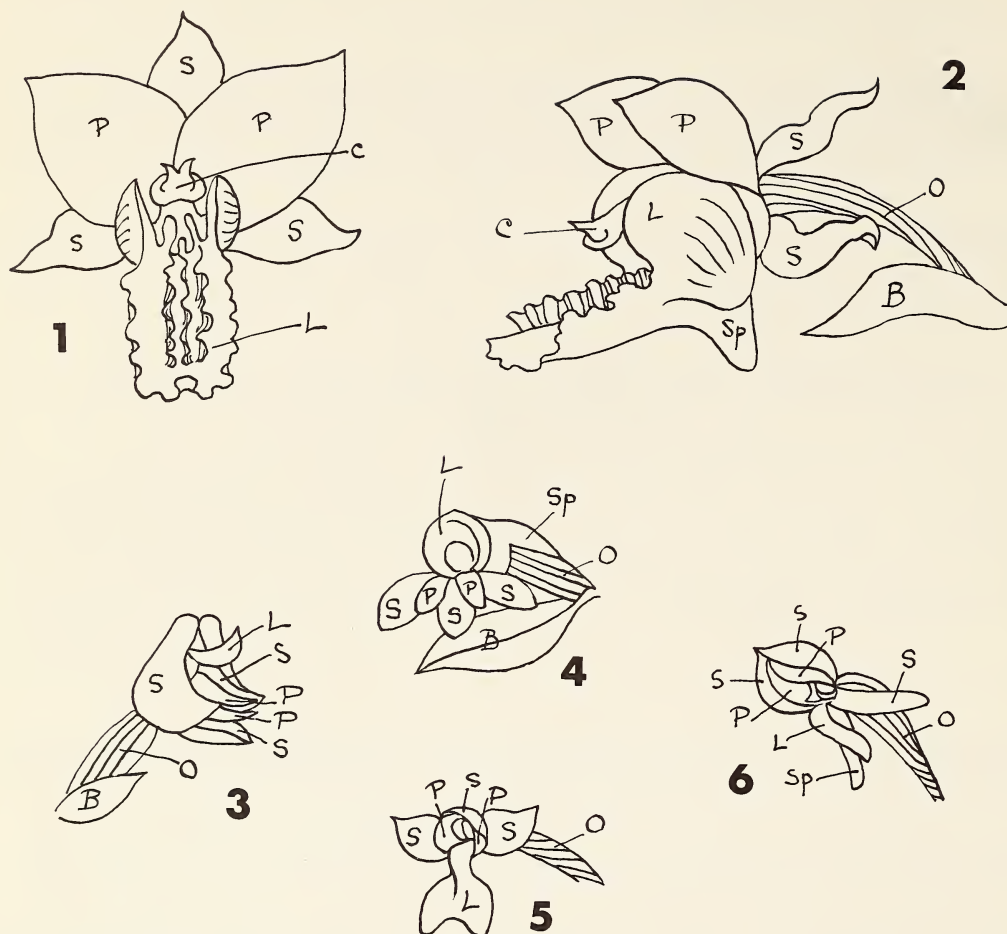
Spurs. One genus common in Kenya, Satyrium, has two spurs; a large number of other genera have one, and others none. Spurs, when present, may vary in length, breadth, colour and place of origin in the flower.

As regards the place of origin. Satyrium has two spurs which start from the back of the lip, which is at the top of the flower as the ovary is not twisted.

Disa has a solitary spur which originates from the back of the upper sepal and the ovary is twisted.

In nearly all other cases of a single spur its place or origin is at the back of the lip.

Diaphananthe and Chamaeangis have been drawn with the spur uppermost. It always points towards the tip of the inflorescence, but as this may be either erect or drooping, so the spur may appear to point upwards or downwards.



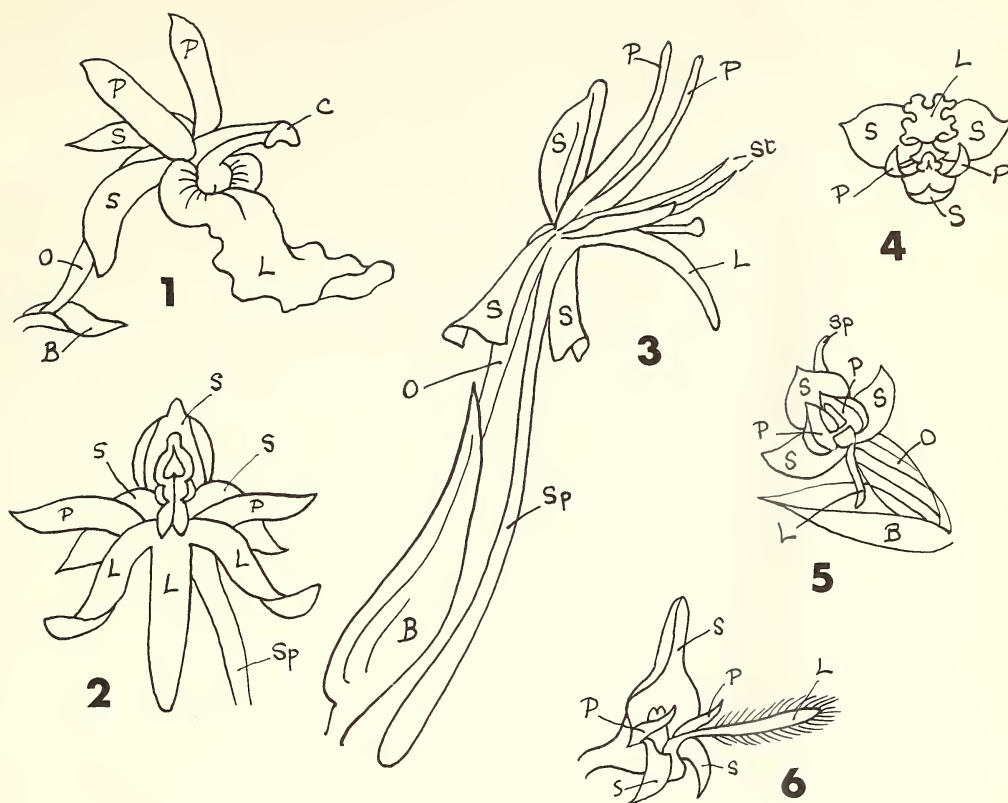
1 & 2. Two aspects of *EULOPHIA PORPHYROGLOSSA* showing the different parts of the flower.

S = sepal
P = petal
L = lip
C = column

Sp = spur
O = ovary
B = bract

3. *POLYSTACHYA CULTRIFORMIS*, enlarged, showing lip uppermost and ovary non-twisted.
4. *SATYRIUM CARSONI*, showing lip uppermost and ovary non-twisted.
5. *BRACHYCORYTHIS PUBESCENS*, with twisted ovary and lip undermost.
6. *PLATYCORYNE CROCEA*, with twisted stem and lip undermost.

PLATE IV Different types of lip



1. EULOPHIA LIVINGSTONIANA
2. HABENARIA WALLERI
3. HABENARIA HOLUBII, showing the stigmatic processes.
4. POLYSTACHYA BICARINATA
5. DISA SCHIMPERI
6. BULBOPHYLLUM COCHLEATUM, enlarged.

S = sepals
P = petal
L = lip
C = column

St = stigmatic processes
Sp = spur
O = ovary
B = bract

Note: How to use the Key to the Flower
Colour Section.

1. If you don't know the general structure of an orchid plant and flower study the Short Notes on Orchids and the plates.

Decide on the colour or colours of the flower under examination.

This is generally easy enough but there are several flowers that are not of any obvious colour for classification purposes. Eulophia calantha, for instance, has brownish-purple sepals, white paired petals, and a purple and green lip. We must have some rule for dealing with such cases, and it has been thought best to call such flowers by the colour of the paired petals.

Another colour problem is the indefinable border line between pink and mauve. If a flower can be called either mauve-pink or pinky-mauve and the reader fails to find his specimen in the 'pink' section he should refer to the 'mauve' one before deciding that the specimen has been omitted from the book.

The same remarks apply to greenish-yellow and yellowish-green also brownish-orange and orange-brown.

2. Note whether the plant is terrestrial or epiphytic and turn to the section. Glance down the colours at the beginnings of the section headings and see how many sections there are dealing with flowers of the colour or colours of the specimen.

3. If there is only one possible section, as in the case of, say a mauve epiphyte, turn to that section forthwith and if the plant has been included in the book, it should be identified without difficulty.

4. If, on the other hand, there are several sections of the correct colour or colours, examine the headings of those sections and note which parts of the flower are used for further classification. Remove a perfect flower or two from the inflorescence, and examine, and, if necessary, measure, those parts.

This examination will determine the correct section number.

Let us give an example of this procedure: There are four possible sections in which, at first sight, a purple terrestrial orchid could be included. The headings of those four sections show that further classification of the flowers of that colour depends on:-

- (a) The length of the flower from the top of the odd sepal to the tip of the lip.
- (b) Whether there is a spur or not.
- (c) If there is a spur, whether it originates from the back of the odd sepal or the back of the lip. An examination of those features of the flower will show in which of the four sections the specimen should be found.

5. A word about the illustrations. These indicate the exact size of the flower, and generally represent in detail one flower from the spike or panicle. If the flower is very small, an enlarged drawing

Kenya Orchids

is provided as well; the flower should be observed through a magnifying glass and can be identified by comparing it with the enlarged drawing.

Of the 220 species of orchids listed in the Check List, 125 have been included in the key and about 65 species omitted, most of them little known.

Key

Terrestrial Orchids:

Section

Plants with green leaves:

- Flowers white or cream 1
- Flowers purple, violet or mauve:
 - Flowers $1\frac{1}{2}$ ins. or more long 2
 - Flowers less than $1\frac{1}{2}$ ins. long:
 - Spurs lacking 3
 - Spur from back of top of odd sepal 4
 - Spur from back of lip 5
- Flowers green and white:
 - Spur at least 4 ins. long 6
 - Spur from 2 - 4 ins. long 7
 - Spur less than 2 ins. long or spur not present 8
- Flowers all green:
 - Stalk and ovary $1\frac{1}{2}$ ins or more long 9
 - Stalk and ovary $\frac{1}{2}$ - $1\frac{1}{2}$ ins. long.
 - Spur at least $\frac{1}{2}$ in. long10
 - Spur less than $\frac{1}{2}$ in. long11
 - Stalk and ovary less than $\frac{1}{2}$ in. long12
- Flowers nearly plain yellow, or orange with sepals much the same colour as the petals:
 - Spur lacking or one only13
 - Spurs two14
- Flowers with yellow or orange petals but sepals of a different colour15
- Flowers red, pink or brown:
 - Spurs 1 or 2 originating from the back of the top floral member:
 - Spur one16
 - Spurs two17
 - Spur only one originating from the bottom of the floral member18
- Plants lacking green leaves, saprophytes19

Epiphytic Orchids:

Section

Flowers white or cream:	
Flowers over 1 in. in diam:	
Spurs 4 ins. long or over	20
Spurs less than 4 ins. long	21
Flowers $\frac{1}{2}$ - 1 in. in diam:	
Spurs 2 ins. long and over	22
Spurs less than 2 ins. long	23
Flowers less than $\frac{1}{2}$ in. in diam:	
Spurs present	24
Spurs absent	25
Flowers purple or mauve:	
Stems pseudobulbous:	
Flower stalks produced from below the pseudobulb	26
Flower stalks produced from apex of the pseudobulb	27
Stems not pseudobulbous	28
Flowers green:	
Stems pseudobulbous:	
Flower stalks produced from below the pseudobulb	29
Flower stalks produced from the apex of the pseudobulb...	30
Stems not pseudobulbous:	
Stem long and straggly	31
Stem short and compact	32
Flowers yellow, orange or brown:	
Stems pseudobulbous	33
Stems not pseudobulbous	34
Flowers red or pink	35

NOTE: All drawings are natural size except those marked with an E which are enlarged.

Section No. 1.

Terrestrial Orchids, flower white or cream.

1. *BRACHYCORYTHIS OVATA* Lindl. subsp. *SCHWEINFURTHII* (Rchb.f.) Summerh.
A white form with lilac markings, see Section 3, No. 2.

2. *DISPERIS ANTHOCEROS* Rchb.f.
Erect to about 7 ins., flowers generally 2 - 3 in a cluster at the top of the plant, flower white shaded with green; leaves 2 almost opposite each other, about half way up the stem, purple underneath; stem spotted, lower part pinkish. Found in dense shade.

Mt. Elgon.



3. *DISPERIS APHYLLA* Krzl.
Erect to 3 or 4 ins., flowers white shaded with green, usually 2 or 3 at the top of the plant; one small leaf halfway up the stem. In deep shade.

Kakamega.



4. *DISPERIS KILIMANJARICA* Rendle
Erect to 3 ins., one white flower, shaded with green and a line of lilac at the edge of the lip; two leaves at intervals up the stem. In mossy shade.

Elgon.



5. *EULOPHIA CALANTHA* Schltr.
A slender plant, erect to about 2 ft. with flowers in open spikes. Bracts, ovary and sepals brownish-purple, paired petals white, lip pale green and lilac on white; leaves long and narrow, pleated.

Elgon Nyanza, Kakamega.



6. EULOPHIA MONTIS-ELGONIS Summerh.

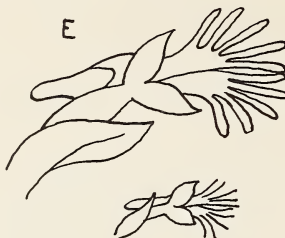
A white form with purple markings, see Section, 5, No. 4

7. HOLOTHRIX ELGONENSIS Summerh.

Erect to about 12 ins.; inflorescence unmistakable owing to its resemblance to a tooth brush, flowers creamy white; leaves large, almost round, flat on the ground, stem bare.

Found at high altitudes in short grass.

Mt. Elgon, Molo, Londiani.



8. PTEROGLOSSASPIS RUWENZORIENSIS Rolfe.

A white form with purple markings, see Section 3, No. 7.

9. SATYRIUM CARSONI Rolfe.

Erect to about 18 ins., flowers white in fairly crowded spikes, spurs two from the back of the lip which as in the case of all Satyriums is at the top of the flower; there are two large round leaves flat on the ground and a few small leaves up the stem.

Mt. Elgon (June - July), Cherangani.



10. SATYRIUM CORIOPHOROIDES A. Rich.

A sturdy plant, erect to 3 ft., spikes crowded, flowers pure white, in shape very like those of S. sacculatum, Section 17, but larger and coarser.
Found in marshy ground.

Nandi, Cherangani.



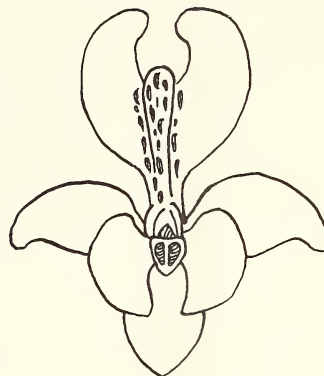
Section No. 2.

Terrestrial Orchids, flowers purple, violet or mauve; $1\frac{1}{2}$ ins. or more long from the top of the odd sepal to the tip of the lip.

1. *BRACHYCORYTHIS KALBREYERI* Rchb.f.

Erect to about 1 ft., spikes open, flowers unmistakable, colour rich purple, or paler mauve; leaves growing up the stem. Found generally growing on rotten, decomposed trees. Beautifully scented.

Itare R. Kericho, Cherangani, Chepalungu Forest.



2. *EULOPHIA CUCULLATA* Steud.

(= *Lissochilus arenarius* Lindl.)

Erect to about 2 ft., ovary nearly 1 in. long, sepals brownish-purple, paired petals and lip purple, there are two dark purple projections in the throat, column and throat whitish; leaves pleated, and appearing after the flower. Found in grass. There is a variant with a paler flower, less bell-like, the projections pale yellow and no spots on the throat.

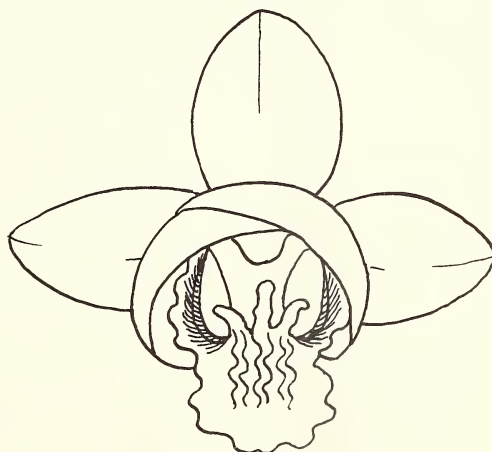
Elgon, Trans-Nzoia, Nyanza Province, Coast.



3. *EULOPHIA LATILABRIS* Summerh.

A sturdy plant, erect to about 4 ft., with ovary green, sepals purplish-brown, paired petals pale mauve, lip white below, mostly yellow above, sometimes purple at base, with 3 - 4 tonsil like projections in the throat, leaves unknown.

Malikisi, Elgon Nyanza.



4. *EULOPHIA LIVINGSTONIANA* (Rchb.f.) Rendle
 (= *Lissochilus mediocris* Rendle)

Erect to about 3 ft., spikes open, sepals and paired petals mauve, the latter being folded backwards along their long axes, lip darker in colour with two brown projecting ridges towards base; leaves pleated, appearing after the flowers.
 Found in grass after earliest rain.

Shimba Hills, Uasin Gishu, Nyanza Province.



5. *EULOPHIA PORPHYROGLOSSA* (Rchb.f.) Bolus.

Erect to 12 ft. but more usually about 6 ft., sepals and ovary purplish-brown, paired petals and lip purple, there are white frills on the lip and two purplish-brown 'cheeks' at its base; leaves up to 4 ft. long and 4 ins. wide, deeply pleated. In wooded swamps.

Common in highlands on river banks and in swamps.



6. *EULOPHIA QUARTINIANA* A. Rich.

Erect to 18 ins. Flowers in rather open spikes. Lip pale pinkish-mauve and white with a flash of deeper mauve, sepals and petals brownish-mauve shaded with green; leaves up to 15 ins. long and 4 ins. wide, pleated, not fully developed when the flowers appear. In bush and light shade, often among rocks.



Elgon, (April) and Nyanza Province.

Note:- This should not be confused with *E. guineensis* which occurs in the same area. This has a slightly pointed lip and the leaves appear before the flowers.

Section No. 3.

Terrestrial Orchids, flowers purple, violet or mauve; less than 1½ ins. long from the top of the odd sepal to the tip of the lip; spurs lacking.

1. BRACHYCORYTHIS BUCHANANII (Schltr.) Rolfe

A slender erect plant to about 18 ins., flowers in rather close spikes, bracts green, much the same length as the dark brown ovary, sepals and paired petals rather pinky-mauve, lip a somewhat darker mauve with two broad lateral and one narrow central lobe; leaves alternate up to the stem about 1 in. long and 4/5 in. wide. Found in swampy ground.



Kakamega (June - July).

2. BRACHYCORYTHIS OVATA Lindl. subsp. SCHWEINFURTHII (Rchb.f.) Summerh. (= B. grandis Krzl. var. ugandensis Braid)

Erect to some 20 ins., flowers purple and white in fairly crowded spikes, ovary green, throat generally purple; leaves short and broad, growing thickly up the stem. Found in grass.



Mt. Elgon (May), Kakamega, Cherangani.

3. BRACHYCORYTHIS PUBESCENS Harv.

Very similar to the above except that the ovary is brown, the lip marked with yellow and the leaves are velvety.



Elgon (May), Elmenteita, Londiani, Kedowa.

4. CYNORKIS ANACAMPTOIDES Krzl.

Erect to 2 ft. but often much less, flowers purple in short close spikes, ovaries purplish-brown, bracts green and much shorter than the ovaries; stem covered with short stiff hairs, ovary and bracts with fine globular gland tipped hairs, leaves elliptic, acuminate, in a rosette at the base of the stem and along it but decreasing in shape and size into bracts towards the flower spike.



In swamps, often associated with Satyrium crassicaule.

Kikuyu, Elgon, Cherangani.

5. *DISPERIS DICEROCHILA* Summrh.

Erect to 6 ins., flowers pinky-mauve and white, ovary and stem green spotted with purple, two leaves opposite on stem.

Elgon (June).

6. *DISPERIS REICHENBACHIANA* Welw. ex Rchb.f.

Erect to 6 ins., flowers pinky-mauve and white, 2 - 5 in number, ovary dull purple $\frac{1}{2}$ - $\frac{3}{4}$ in. long; leaves 2 - 3, alternate on stem, dark green with pale green veins on upper surface, dull purple below; stem dull purple.

Found in shady forest.

Mt. Elgon (June - July), Mt. Kenya, Kinangop, Kakamega.

7. *PTEROGLOSSASPIS RUWENZORIENSIS* Rolfe.

Slender plants, erect to about 2 ft., flowers dingy purple or white with purple markings, spirally arranged in a close cluster at the end of the stem, bracts erect and much longer than the green ovary; leaves narrow and pleated.

Found in grass.

Mt. Elgon (June).



Section No. 4.

Terrestrial Orchids, flowers purple, violet or mauve; less than $1\frac{1}{2}$ ins. from the top of the odd sepal to the tip of the lip; with spurs from the back of the top sepal.

1. *DISA CONCINNA* N.E.Br.

Erect to about 1 ft., flowers white or lilac streaked with purple, in rather crowded spikes, ovary and stem often speckled with brown, the odd top sepal combines with the paired petals to form the hood; leaves short and wide at intervals up the stem.

Found in short grass.

Mt. Elgon (March - May), Kakamega.



2. *DISA HIRCICORNIS* Rchb.f.

A sturdy plant, erect to about 2 ft., flowers dark pinky-purple in densely crowded spikes, bracts purplish, the odd sepal combines with the paired petals to form the hood; leaves broad and up to 6 ins. long growing up the stem. Found in swamps.



Mt. Elgon (August), Trans Nzoia.

3. *DISA STAIRSII* Krzl.

Erect to 2 ft., flowers deep purple-pink in rather crowded spikes, see Section 16, No. 4

Section No. 5.

Terrestrial Orchids, flowers purple, violet or mauve; less than 1½ ins. from the top of the odd sepal to the tip of the lip; with spurs from back of lip.

1. *CALANTHE CORYMBOSA* Lindl.

Erect to about 1 ft., flowers in open spikes, violet in colour but turning brown when fading; leaves elliptical, pleated, in a cluster at the base of the plant, from small pseudobulbs buried in leaf-mould.



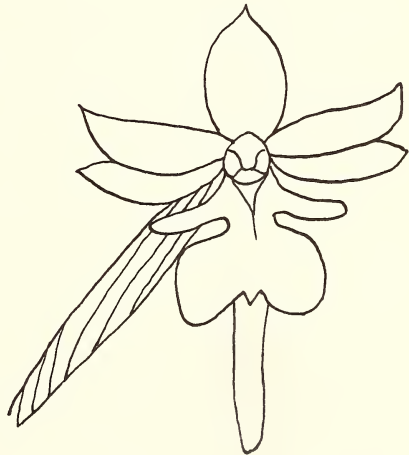
Nyeri.

2. *CALANTHE VOLKENSII* Rolfe.

Erect to about 3 ft., spikes open, sepals and paired petals pale mauve, lip dark mauve which turns orange when fading; leaves long and up to 3 ins. wide. Always found in dense shade.

Mt. Kenya, Abardares, Mau, Kericho, Chyulu Hills.

Note: In the Jombeni Hills there is a similar plant with flowers about twice the size of the above, while in the Chyulu Hills there is a white flowering variety.



3. CYNORKIS KASSNERIANA Krzl.

Erect to about 10 ins., spikes open; one or two large leaves at the base and a number of smaller leaves up the stem.
Found growing on grassy banks but also on rotten, decomposed trees.



Mt. Kenya, Kericho, Aberdares, Cherangani, Mau.

4. EULOPHIA MONTIS-ELGONIS Summerh.

Erect to 3 ft., flowers pinky-mauve or pale mauve with purple markings, rather flattened, in fairly open spikes, median lobe of lip coarsely hairy on upper surface; leaves narrow and pleated, stem leafless but with a few dry bracts. Found in grass.



Mt. Elgon (May).

Section No. 6.

Terrestrial Orchids, flowers green and white, spurs at least 4 ins. long.

1. BONATEA STEUDNERI (Rchb.f.) Dur. & Schinz., see Section 9, No. 1.

2. HABENARIA MACRURA Krzl.

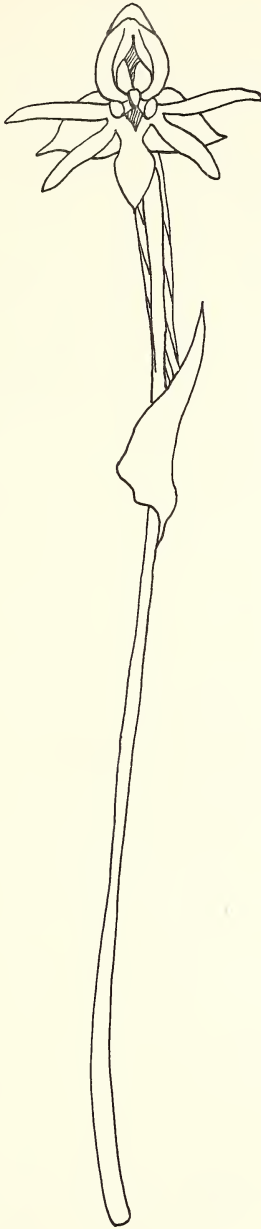
Erect to 18 ins., flowers 3 - 5 in open spikes, spur 4 - 5 ins. long, usually lying against the stem and enclosed by the bracts; leaves all up the stem, pleated. See page 20.
In grass.

Cherangani, Trans Nzoia.

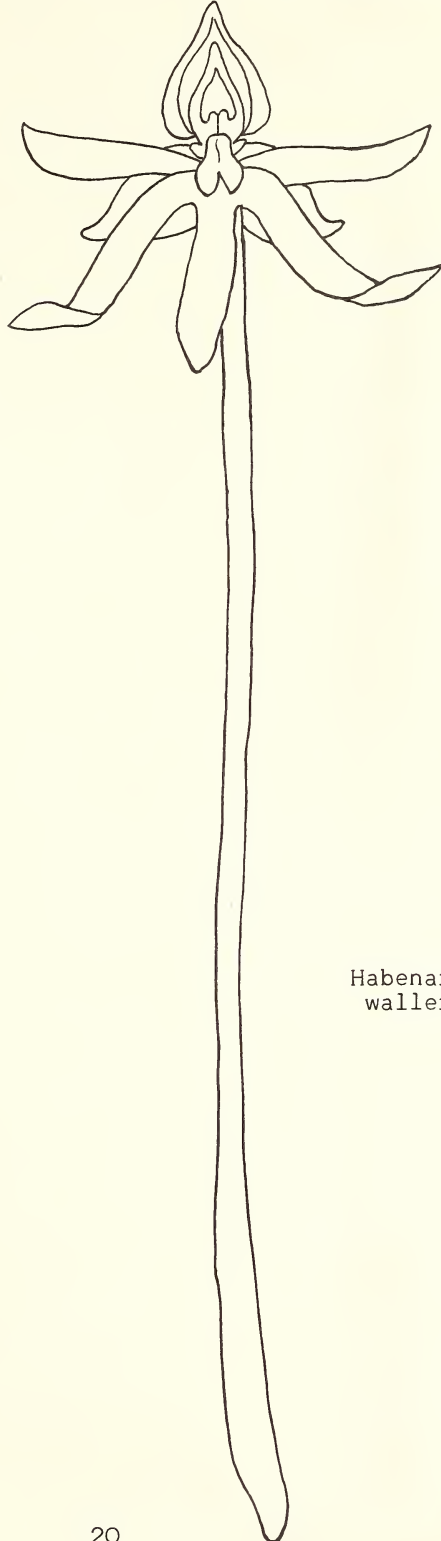
3. HABENARIA WALLERI Rchb.f.

Erect to 3 ft., open spikes of 3 - 6 flowers, the 5 - 6 ins. long spur lies against the stem enclosed by the bracts.
In grass. See page 20.

Elgon, Trans Nzoia.



Habenaria
macrura



Habenaria
walleri

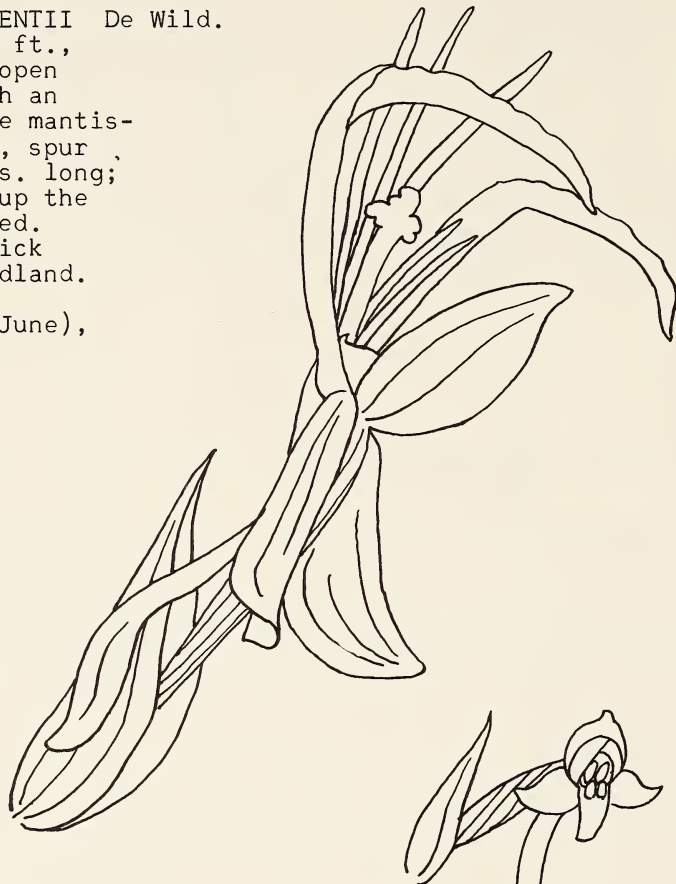
Section No. 7

Terrestrial Orchids, flowers green and white with spurs 2 - 4 ins. long.

1. *HABENARIA LAURENTII* De Wild.

Erect to 2½ ft.,
flowers in open
spikes, with an
unmistakable mantis-
like flower, spur
nearly 3 ins. long;
leaves all up the
stem, pleated.
Found in thick
bush or woodland.

Mt. Elgon (June),
Nandi.

2. *HABENARIA ZAMBESINA* Rchb.f.

Erect to some 2½ ft., spikes rather
crowded, sepals white, broad, spurs
up to 2½ ins. long; leaves all up
the stem, pleated.
Found in swamps.

Malakisi (July), Elgon Nzanza.

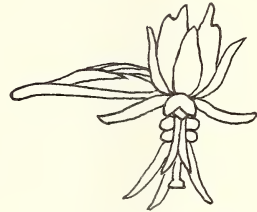


Section No. 8.

Terrestrial Orchids, flowers green and white, with spurs less than 2 ins. long or with no spurs.

1. *DISPERIS ANTHOCEROS* Rchb.f.
Erect to 6 ins., flowers white and green.
Found in deep shade and generally near water, see Section 1, No. 2.
2. *DISPERIS APHYLLA* Krzl., see Section 1, No. 3.
3. *DISPERIS KILIMANJARICA* Rendle, see Section 1, No. 4.

4. *HABENARIA CHIRENSIS* Rchb.f.
Erect to 3 ft., spikes rather open,
flowers with an unpleasant smell, the
white parts of the flower are the
column and the upper of the stigmatic
processes, leaves on the flowering
stem pleated.
Found in swamps or shallow, wet soil
over rocks.



Mt. Elgon (July), Nandi, Limuru, Kiambu,
common.

5. *HABENARIA KENIENSIS* Summerh.
Erect to 28 ins., spikes open,
flowers mistakable only for
those of the following species.
Compare the drawings and study the
description of *H. splendens* and
H. quartiniana. Leaves up stem
and pleated.
Found in thick bush and
woodland.



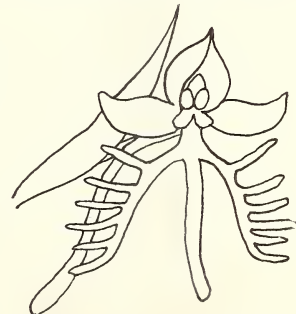
Formerly confused with
H. praestans Rendle

Mt. Elgon (May - June),
Aberdares, Mau Summit, Eldama
Ravine, Eldoret.

6. *HABENARIA LINDBLOMII* Schltr., see Section 10, No. 7.
The flower is green, but the centre is conspicuously white.

7. *HABENARIA QUARTINIANA* A. Rich.
Erect to 2 ft., often associated with
H. keniensis, it differs from this by
the flower being smaller and the lip
less elaborate.
In thick bush and woodland.

Elgon.



8. *HABENARIA SCHIMPERIANA* Hochst. ex A. Rich.

Erect to about 2 ft., flowers on $\frac{1}{2}$ in. stalks pendulous in fairly open spikes, the only white parts of the flower are the paired petals and the top of the column, spur less than $\frac{1}{2}$ in. long, spirally twisted and thickened towards the apex; leaves up the stem.

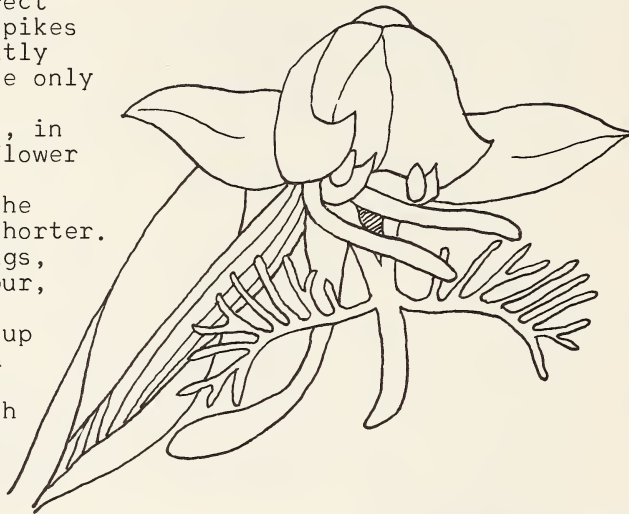
Found in long grass.



Kakamega (August), Trans Nzoia, Aberdares.

9. *HABENARIA SPLENDENS* Rendle.

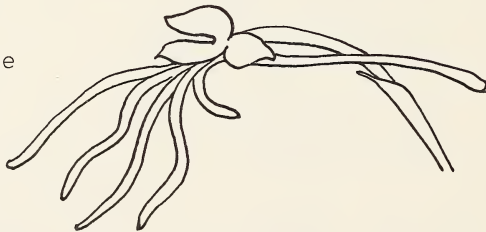
A sturdy plant, erect to some 18 ins., spikes open, flowers faintly scented, mistakable only with those of the preceeding species, in this species the flower is larger than in *H. keniensis* but the stem tends to be shorter. Compare the drawings, noting shape of spur, lip and stigmatic processes; leaves up the stem, wide and pleated. Found in thick bush and woodland.



Mt. Elgon (June), Kaimosi.

10. *HABENARIA TRILOBULATA* Schltr.

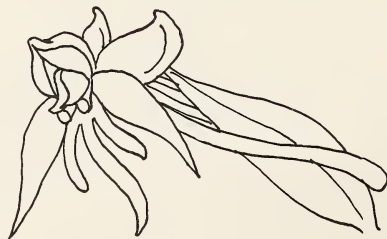
Thin stem to 12 ins., with no leaves except for two flat ones at the base, these are wide, pointed and with conspicuous parallel veins. Flowers green but paired petals white, few, in open spikes. In open forest.



Coast, Sokoke Forest.

11. *HABENARIA TWEEDIEAE* Summerh.

Erect to 3 ft., spikes rather open, odd sepal forms a small hood which has white edges; leaves up the stem, pleated. Found in thick bush. There is an abnormal form which is often seen on Elgon.



Mt. Elgon (October).

Section No. 9.

Terrestrial Orchids, flowers all green
with ovary $1\frac{1}{2}$ ins. long or more.

1. *BONATEA STEUDNERI* (Rchb.f.) Dur. & Schinz.
(= *B. ugandae* Rolfe and *B. arabica*
(Deflers) Cortesi).

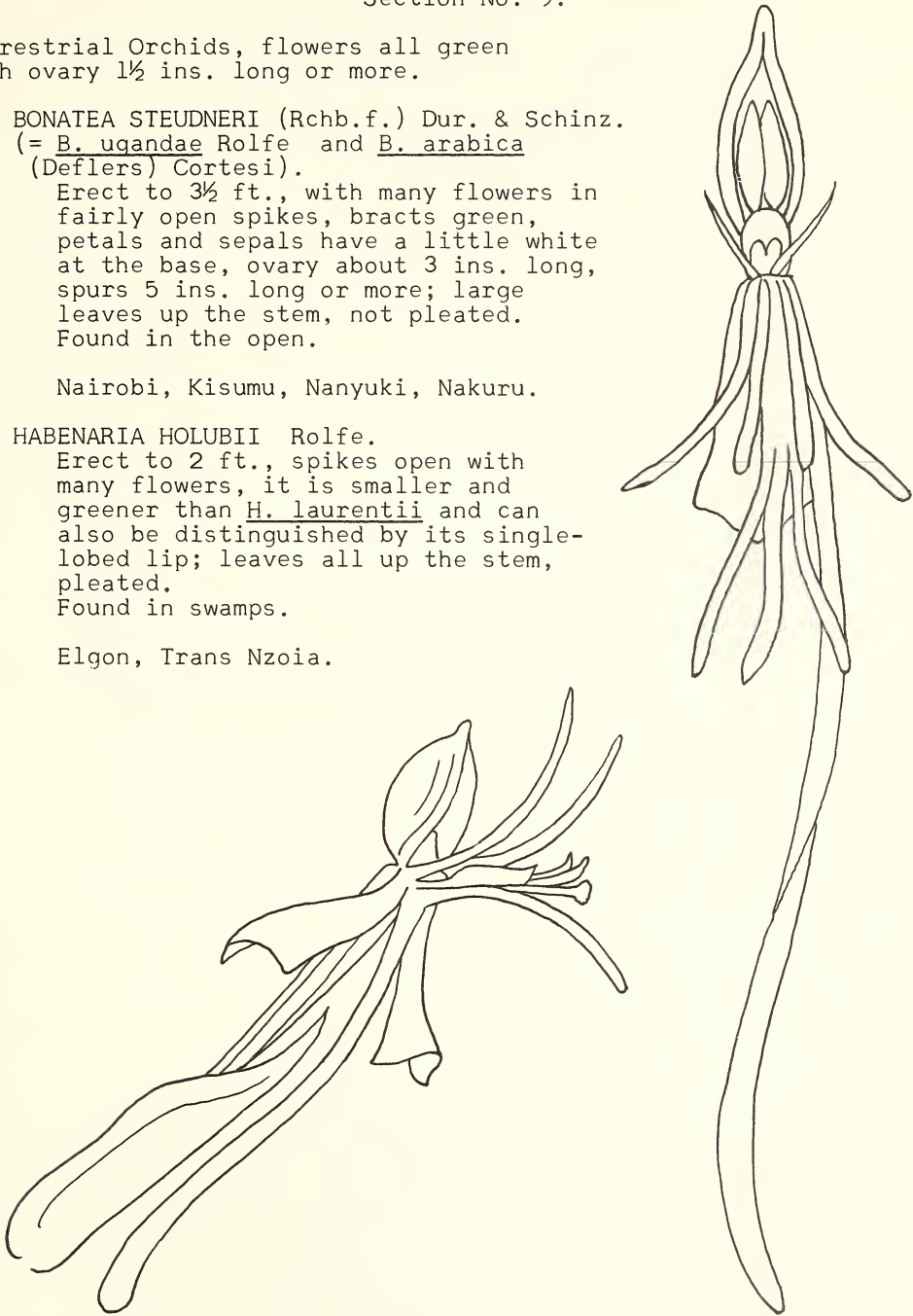
Erect to $3\frac{1}{2}$ ft., with many flowers in
fairly open spikes, bracts green,
petals and sepals have a little white
at the base, ovary about 3 ins. long,
spurs 5 ins. long or more; large
leaves up the stem, not pleated.
Found in the open.

Nairobi, Kisumu, Nanyuki, Nakuru.

2. *HABENARIA HOLUBII* Rolfe.

Erect to 2 ft., spikes open with
many flowers, it is smaller and
greener than *H. laurentii* and can
also be distinguished by its single-
lobed lip; leaves all up the stem,
pleated.
Found in swamps.

Elgon, Trans Nzoia.

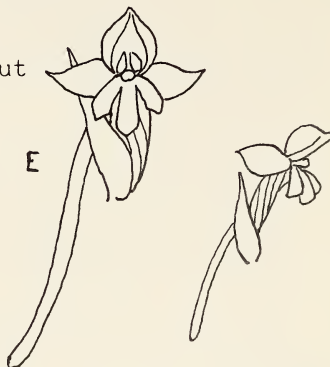


Section No. 10

Terrestrial Orchids, flowers all green, with ovary $\frac{1}{2}$ - $1\frac{1}{2}$ ins. long, spur at least $\frac{1}{2}$ in. long.

1. *HABENARIA BRACTEOSA* Hochst. ex A. Rich.
To 2 ft., rather like Nos. 3 and 5, but
spike longer and flowers larger and
more crowded.
Near water.

Elgon (September).



2. *HABENARIA CORNUTA* Lindl. (= *H. ruwenzoriensis* Rendle)

Erect to 18 ins., spikes rather open, the
odd sepal forms a small hood, paired petals
two-lobed, lip one-lobed and narrow; leaves
up the stem, pleated.
Found in grass.

Mt. Elgon (July), Simba Valley.



3. *HABENARIA FILICORNIS* Lindl.

Erect to about 2 ft., spikes rather
open, flowers tiny and mosquito-like;
leaves all up the stem, pleated.
Found in grass.

Mt. Elgon (July), Kakamega.



4. HABENARIA HELICOPLECTRUM Summerh.

Erect to about 2 ft., spikes very open, there are 2 large round leaves flat on the ground and smaller ones up the stem. Found in dry stony country.

Isiolo.



5. HABENARIA HOLOGLOSSA Summerh.

Erect to 18 ins., flowers green rather like those of H. filicornis but the lip is not trilobed; leaves up the stem. In grass.

Elgon (July - August).



6. HABENARIA HUMILIOR Rchb.f.

(= H. hochstetteriana Krzl. and H. cuculifera Rendle)

Erect to 18 ins., flowers very sweet-scented, in open spikes; leaves all up the stem, pleated.

Found in swamps or in shallow, wet soil over rocks.

Elgon, Kakamega, Tinderet, Kapenguria, Teita Hills, common.

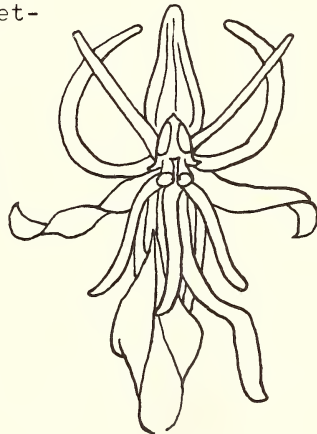


7. HABENARIA LINDBLOMII Schltr.

Erect to 18 ins., flowers very sweet-scented, rather like Lanoline, in open spikes, column and stigmatic processes white. Note deeply ridged ovary. A distinguishing feature of this plant is a pair of large basal oval leaves lying flat on the ground as well as leaves up the stem.

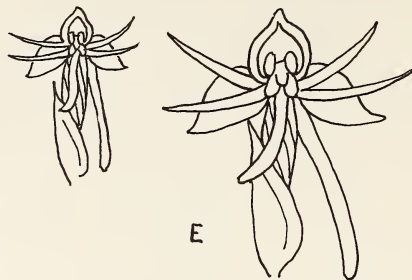
Found in grass.

Mt. Elgon (June), Trans Nzoia.



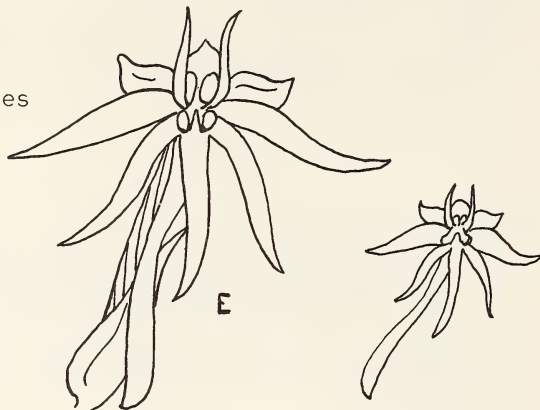
8. *HABENARIA MALACOPHYLLA* Rchb.f.
Erect to 3 ft. 6.ins., spikes
fairly open; leaves up the stem,
wide and pointed but not pleated.
Found in forest.

Mt. Elgon, Kakamega, Kamasia,
Chyulu Hills.



9. *HABENARIA NDIANA* Rendle.
Erect to 18 ins., spikes
fairly open, sepals
turned backwards over
the ovary; leaves all
up the stem, pleated.
Found in grass.

Mt. Elgon, Ndi Hills,
Chyulu Hills, Rabai.



Section No. 11

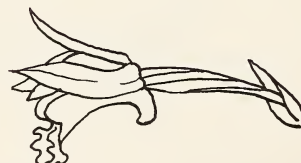
Terrestrial Orchids, flowers all green, ovary $\frac{1}{2}$ - $1\frac{1}{2}$ ins. long,
spurs less than $\frac{1}{2}$ in. long.

1. *EULOPHIA ADENOGLOSSA* (Lindl.) Rchb.f.
A stout plant, erect to 2 ft., spikes fairly
open; leaves undeveloped at flowering stem,
thin and pleated.

Malakisi, Elgon Nyanza.



2. *EULOPHIA CHLOROTICA* Krzl.
Erect to some 3 ft., spikes open sepals
and paired petals green with parallel
brown lines, lip pinkish-mauve on the
upper surface, spur short, bright green;
leaves long and narrow, pleated.
Found in swampy ground.



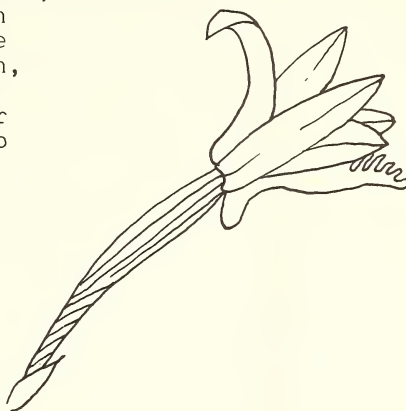
Trans Nzoia (April), Kakamega (July-August).

3. EULOPHOA PETERSII Rchb.f. (= E. schimperiana A. Rich.)

Rather a slender straggling plant, erect to some 6 ft., flowers in very open panicles, sepals pale brown, paired petals pale green, lip white, colour variable in intensity; leaves three to four from the apex of the pseudobulb like some epiphytic orchids. Found at low altitudes.

Turkana, Nairobi, Baringo, Coast, West Pokot.

N.B. At the time of revision the final names of several species or subspecies of this plant are not yet decided.



Section No. 12.

Terrestrial Orchids, flowers all green with ovary less than ½ in. long.

1. HABENARIA PERISTYLOIDES A. Rich. (= H. rendlei Rolfe)

Erect to nearly 3 ft., spikes crowded; leaves all up the stem, large, broad and pleated. Found in grass.

Mt. Elgon (June), Trans Nzoia, Kakamega, Nandi, (July - August), Kericho, Mau, common.



2. HABENARIA PETITIANA (A. Rich.) Dur. & Schinz.

(= Peristylus petitianus A. Rich.)

Erect to 18 ins., spikes rather open, leaves all up the stem, not pleated. Found in thick bush and woodland.

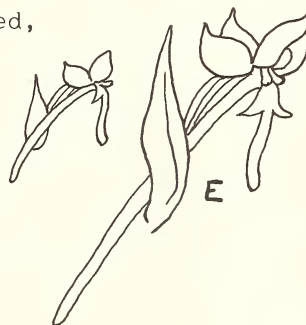
Mt. Elgon (July), Timberoa, common at high altitudes.



3. HABENARIA VAGINATA A. Rich.

Erect to 6 ins., spikes fairly crowded, flowers rather like those of H. filicornis but this plant has a large rounded basal leaf as well as small scale-like leaves up the stem. Found in short grass, at fairly high altitudes.

Mt. Elgon 8,000 ft., Nairobi, Ngong, Limuru.



4. SATYRIUM SCHIMPERIANUM Hochst.

Erect to 18 ins., flowers green in crowded spikes, leaves up the stem.
In grass at high altitudes.

Timboroa, Ol Kalau, Londiani.

5. SATYRIUM VOLKENSII Schltr. (= S. dzygoceras Summerh.)

Erect to 18 ins., spikes fairly crowded, flowers green or greenish brown, two spurs at back of the lip which is at the top of the flower; leaves up the stem.
Found in grass.

Mt. Elgon (April-May), Kakamega, Kinangop,
Ol Kalou, Molo, Londiani.



Section No. 13.

Terrestrial Orchids, flowers nearly plain yellow, or orange with sepals much the same colour as the petals, spur one or none.

1. DISA OCHROSTACHYA Rchb.f.

To 18 ins. in dense spikes, flowers golden yellow.
In grass at high altitudes.

Ainabkoi, Kipkabus.



2. EPIPACTIS AFRICANA Rendle.

Erect to 8 ft. with a long spike on which flowers are continually opening and dying, flowers greenish-yellow with a good deal of russet-brown veining, ovary brown, bracts green. Heavily veined leaves sheathe the stem, decreasing in size till they become reduced to bracts.
In shade on the edges of streams and swamps.

Mt. Elgon, Aberdares, Thika.

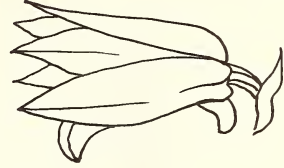


3. *EULOPHIA SHUPANGAE* (Rchb.f.) Krzl., see Section 18, No. 3

4. *EULOPHIA SUBULATA* Rendle.

Erect to 15 ins., flowers bright yellow, with an orange patch on the lip, spikes short and close; leaves pleated, long and narrow.

Found in grass.



This orchid is common in Uganda. It is doubtful whether the gathering from Elgon was found on the Kenya side.

Elgon.

5. *EULOPHIA WARNECKEANA* Krzl.

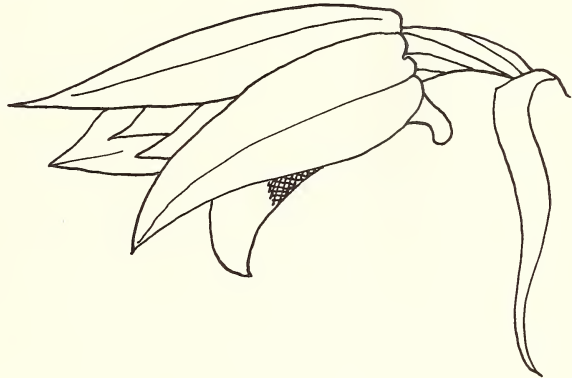
Erect to 12 ins., spikes fairly open, flowers yellow with reddish-orange lip and spur, and green ovary; leaves narrow and pleated. In grass.



Broderick Falls (April).

6. *EULOPHIA ZEYHERI* Hook.f.

Erect to 15 ins., spikes short and very close, flowers bright yellow with a dark-reddish brown patch on lip and throat; leaves pleated.



Kakamega.

7. *NERVILIA KOTSCHYI* (Rchb.f.) Schltr.

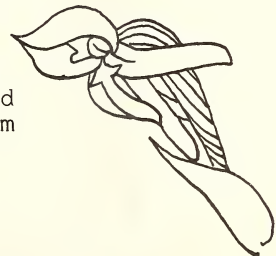
Erect to 6 ins., spikes open, sepals and paired petals greenish-yellow, lip cream with pink streaks; stems reddish-brown; flowers appear before leaves. Found in short grass.



Kakamega, Broderick Falls.

8. *PLATYCORYNE CROCEA* (Schweinf. ex Rchb.f.) Rolfe (= *P. montis-elgon* (Schltr.) Summerh, also formerly confused with *P. buchananiana* (Krzl.) Rolfe.

Erect to some 14 ins., spike few flowered and crowded, flowers golden yellow, the odd sepal and the paired petals combine to form the prominent hood; leaves up the stem. Found on shallow wet soil over rocks.



Mt. Elgon, Eldoret, Shimba Hills.
Common but local.

Section No. 14.

Terrestrial Orchids, flowers nearly plain yellow or orange with sepals much the same colour as the petals, spurs two.

1. SATYRIUM SCEPTRUM Schltr.

Erect to some 30 ins., flowers orange in densely crowded spikes; leaves up the stem. Found in rather swampy ground.

Cherangani (June), Elgon 8,000 ft. (June), Aberdares, Molo, Londiani.



Section No. 15.

Terrestrial Orchids, flowers with yellow or orange petals, sepals of a different colour.

1. EULOPHIA ANGOLENSIS (Rchb.f.) Summerh.

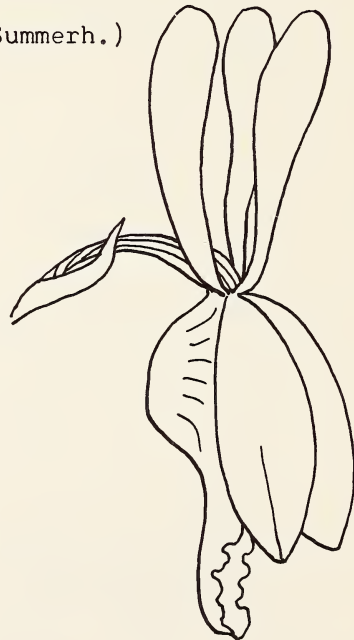
(= E. lindleyana (Rchb.f.) Schltr.

= Lissochilus paludicolus (Rchb.f.) Summerh.)

Erect to 4 ft. with fairly open spikes sometimes weighed down by the numerous flowers, sepals greenish-yellow at base shading to dull red at the tips, paired petals and lip golden yellow, lip marked with dull red; leaves tall, pleated.

Found in swamps, it is sold in Nairobi as a cut flower.

Nairobi area, Fort Hall, Nandi.



2. EULOPHIA ORTHOPLECTRA (Rchb.f.) Summerh.
(= Lissochilus bellus Schltr.)

Erect to about 2½ ft., spikes open, sepals dark brown, petals and lip bright yellow on upper, streaky red on lower surface. Flowers unmistakable, appearing in the dry season without leaves which are leathery, these appear during the wet season, dying down before the flower spikes emerge. Found in grass.



Elgon (November - March), Trans Nzoia.

3. EULOPHIA PAIVAEANA (Rchb.f.) Summerh. subsp. BOREALIS Summerh.
(= Lissochilus oliverianus Rchb.f.)

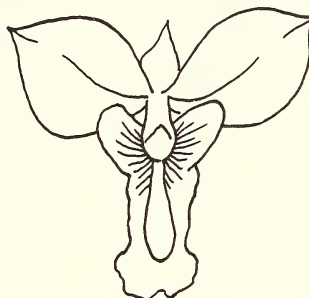
Erect to about 4 ft., spikes very open, sepals green with brownish flecks, paired petals plain yellow; spur short, purplish; leaves thin, pleated, up to 2 ft. long, appearing April - May. Found both in bush and in the open.



In the highlands, common and widespread, flowering from late June onwards, especially October.

4. EULOPHIA WAKEFIELDII (Rchb.f. & S. Moore) Summerh.

Erect to 3 ft., sepals greeny-brown, paired petals and lip bright yellow; leaves broad, not pleated. Found in both rocky and marshy ground.



Trans Nzoia (May), Coast, Kisumu, Endo.

Section No. 16.

Terrestrial Orchids, flowers red, pink or brown, with only one spur originating from the back of the top floral member.

1. DISA DECKENII Rchb.f.

Spikes crowded, flowers pink, very like those of D. subaequalis, but stem shorter, 8 ins. or less; leaves up the stem. A plant of high altitudes.



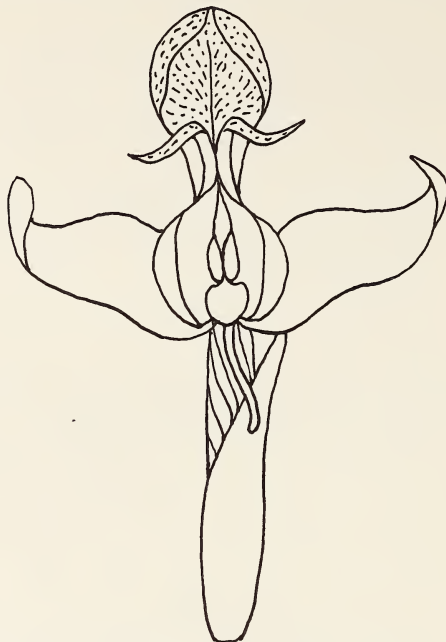
Mt. Kenya, Aberdares, Cherangani.

2. *DISA ERUBESCENS* Rendle.

A very grotesque yet handsome orchid, flowers few in open spikes, in shades of orange and pink, the spoon-shaped upper sepal is golden yellow with pink dots; leaves separate narrow and pleated also small ones sheathing the stem, which is 14 - 18 ins. tall.

Found in rather swampy grassland.

Cherangani, Elgon,
Kakamega.

3. *DISA SCUTELLIFERA* A Rich. (= *D. schimperi* N.E.Br.)

A sturdy plant, erect to 30 ins., flowers rose-pink, in crowded spikes, hood and lip spotted with deeper pink; leaves up the stem.

Mt. Elgon, Cherangani.

4. *DISA STAIRSII* Krzl.

Erect to 2 ft., flowers deep purple-pink in fairly crowded spikes; leaves up the stem, at base of stem broad and long. Found at fairly high altitudes near water.

Mt. Elgon above 10,000 ft., Cherangani Hills,
Aberdares, Mt. Kenya.



5. *DISA SUBAEQUALIS* Summerh.

Erect to about 2 ft., flowers rose-pink, in crowded spikes, hood and lip not spotted, thus distinguishing this from *D. scutellifera*; leaves up the stem.
Found in swamps.

Trans Nzoia (July), Nandi (July), Kakamega.

Note: *Disa* is at present being revised.



Section No. 17.

Terrestrial Orchids, flowers red, pink or brown, with two spurs originating from the back of the top floral member.

1. *SATYRIUM CRASSICAULE* Rendle

A stout plant, erect to 4 ft., flowers rose-pink with two spurs in densely crowded spikes; leaves up the stem.

Generally found near water.

Elgon, Trans Nzoia, Kikuyu, Limuru, Nandi, Timboroa.



2. *SATYRIUM FIMBRIATUM* Summerh.

Erect to about 1 ft., flowers unmistakable, pale pink, in rather close spikes; leaves up the stem and also two large round leaves flat on the ground.

Cherangani (June), Aberdares, Maralal, Molo, Londiani.



3. *SATYRIUM SACCULATUM* (Rendle) Rolfe.

Erect to about 3 ft., flowers in densely crowded spikes, unmistakable, being bright red and the bracts usually reddish; leaves up the stem.
Found in grass.

Elgon (June), Trans Nzoia, Nandi, Kakamega; very common.



Section No. 18.

Terrestrial Orchids, flowers red, pink or brown, with only one spur originating from the bottom of the floral member.

1. *EULOPHIA PARVULA* (Rendle) Summerh.

Erect to about 18 ins., spikes open, bracts very short, sepals and paired petals greeny-brown, lip yellow above; leaves appearing after the flowers, up to about 8 ins. long from apices of underground pseudobulbs, which are short and fat.

Found in rather dry country in the open.



Maralal.

2. *EULOPHIA QUARTINIANA* A. Rich. Flowers pinky-mauve, see Section 2, No. 6.3. *EULOPHIA SHUPANGAE* (Rchb.f.) Krzl. (= *E. propinqua* Hutch.).

Erect to 2 ft. 6 ins., spikes fairly close and up to 3 ins. long, flowers variable in colour between dark maroon and yellow shaded with reddish brown, lip rather hairy above, bracts shorter than the ovary; leaves long, grass-like, pleated.

Found in long grass.



Kakamega, Elgon.

Section No. 19.

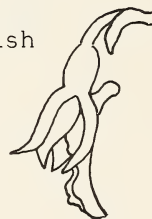
Terrestrial Orchids, plants lacking green leaves (Saprophytes).

1. *EPIPOGIUM ROSEUM* (Don) Lindl.

Erect to about 8 ins., spikes open, stem pinkish at base, flowers rather a dirty white with greyish-purple spots.

Found growing in leaf mould in forest.

Elgon (March).

2. *EULOPHIA GALEOLOIDES* Krzl.

Erect to 6 ins., root large, woody and covered with brown scales, spikes rather open, flowers cream; brown scale leaves on stem.

Found in forest.



Kakamega (February).

Section No. 20.

Epiphytic Orchids, flowers white or cream, over 1 in. in diameter, with spurs 4 ins. long or more.

1. AERANGIS CORIACEA Summerh.

A short but strongly growing plant, spikes open and with few flowers, flowers white with a faint blush, spurs long, twisted, pinkish; leaves to 8 ins. long and 1½ ins. wide, faintly mottled and rather bilobed. See page 37.
In fairly deep shade.

Mt. Kenya, Kikuyu, Nyambeni Hills.

2. AERANGIS FRIESIORUM Schltr.

Distinguished from A. kirkii by its long spurs and longer pointed petals and sepals; leaves very bilobed, widening towards the tip. See page 37.

Nairobi and other places east of the Rift Valley.

N.B. At the time of revision the name of this species had not been finally settled.

3. AERANGIS KOTSCHYANA (Rchb.f.) Schltr.

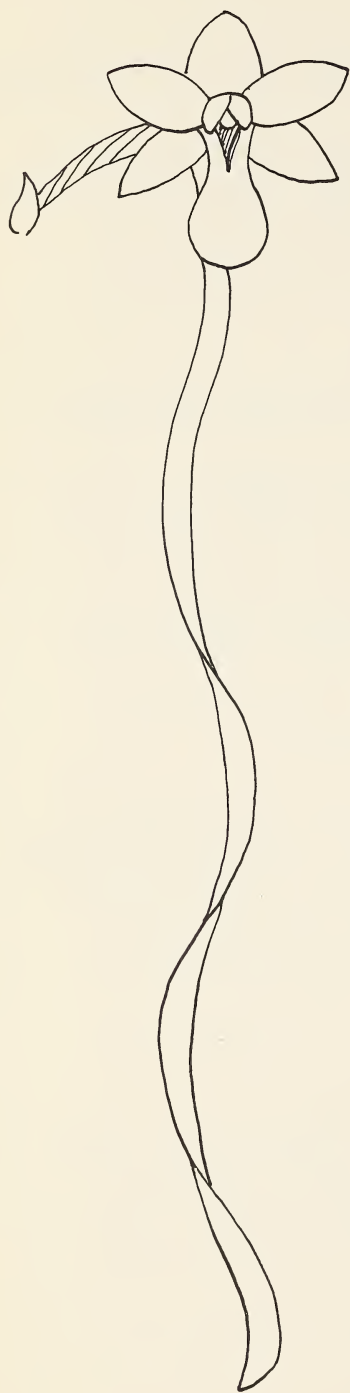
Spikes up to 3 ft. long, flowers pure white with pinkish corkscrew spur, about 9 ins. long; leaves 6 - 10 in number and about 10 ins. long. See page 38.
Found in dense shade.

Kwale, Rabai, Shimba Hills, Nyanza Province.

4. AERANGIS THOMSONII (Rchb.f.) Schltr.

Flowers waxy white with pinkish spurs 4 - 5 ins. long, in open lateral spikes; leaves up to 8 ins. long and 1 in. wide. A plant of high altitudes. See page 38.

Common in highlands over 7,000 ft.



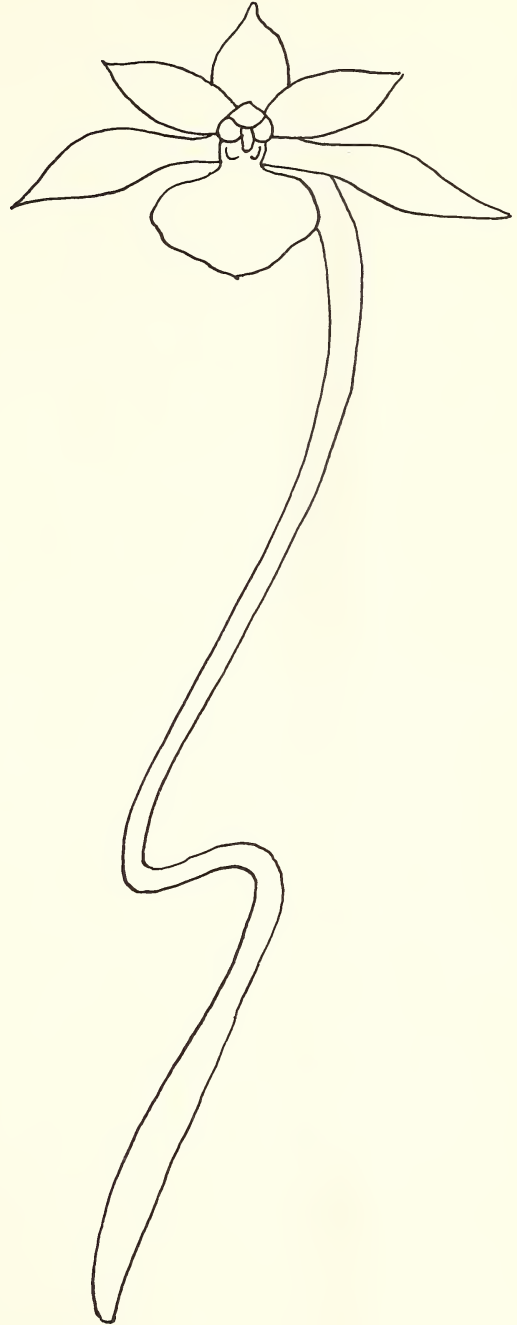
Aerangis coriacea



Aerangis friesiorum



*Aerangis
thomsonii*



*Aerangis
kotschyana*

Section No. 21.

Epiphytic Orchids, flowers white or cream, over 1 in. in diam. with spurs less than 4 ins. long.

1. *AERANGIS KIRKII* (Rolfe) Schltr.

A sturdy leafy plant, spikes very open and up to 1 ft. long, flowers opening first at the tip, pure white or sometimes tipped with pale pink, spur and ovary light brown; leaves 3 - 6 ins. long much broader at the apex, see Section 20, No.2. Found in light shade.

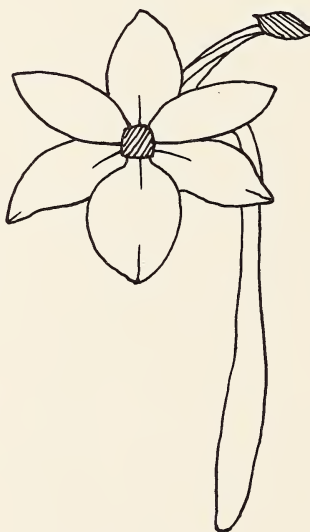


Coast.

N.B. At the time of revision the name of this plant had not been settled; further species exist which are somewhat similar.

2. *AERANGIS RHODOSTICTA* (Krzl.) Schltr.

Spikes open with flowers all lying in the same plane, pure white except for the bright red column, unmistakable. Small plants found in dense shade, frequently on wild coffee bushes.

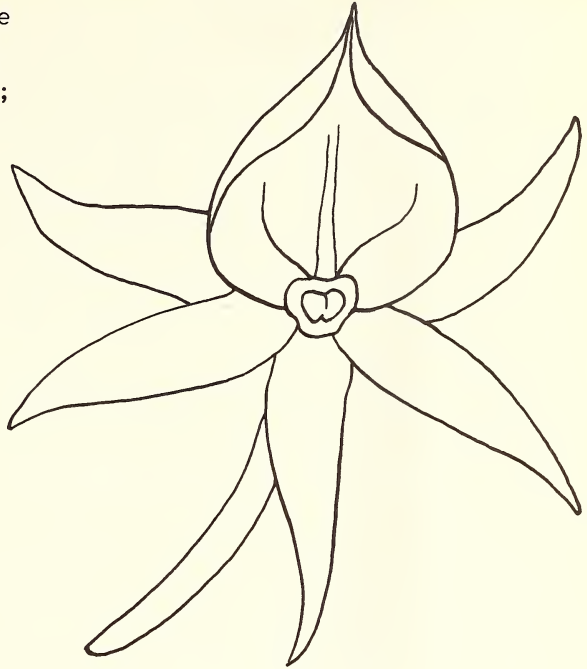


Kakamega Forest (May - July), Thika, Kericho, rivers on east of Mt. Kenya, Nyambeni Range.

3. *ANGRAECUM GIRYAMAE* Rendle

A large robust plant,
flowers pale green
with a pure white lip;
strongly scented and
turning yellow when
they fade, the ovary
is so extremely
twisted that the lip
is uppermost.
Found growing on low
coral cliffs within
reach of the salt
spray, as well as on
trees. A very
beautiful orchid.

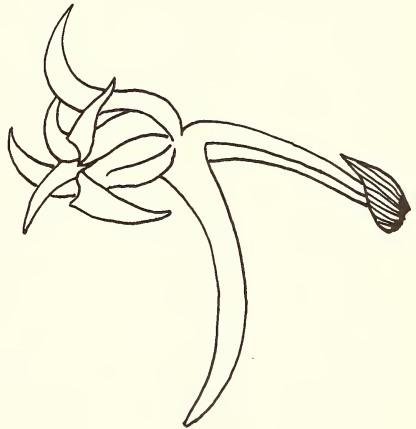
Coast.



4. *CYRTORCHIS ARCUATA* (Lindl.) Schltr. subsp. *VARIABILIS* Summerh.
(= *C. sedeni* (Rchb.f.) Schltr. and formerly confused with
C. whytei (Rolfe) Schltr.)

There are a number of forms of
this species with flowers very
similar in appearance, i.e. waxy
white in colour, with 3-angled
ovaries, pointed sepals and
petals and tapering spurs;
flowers turn orange when fading.
The plants are generally
strong growing, leafy and
untidy and there are generally
two open spikes of flowers on
each plant; leaves stiff and
leathery.

Kakamega (dry season), Mt. Elgon,
Trans Nzoia, Mt. Kenya,
Aberdares, Kericho, Mau,
Tinderet, Londiani, Coast.



5. *RANGAERIS AMANIENSIS* (Krzl.) Summerh.

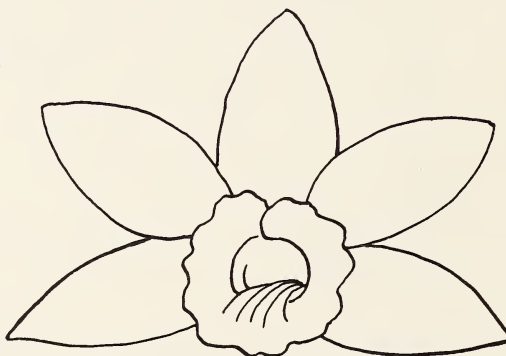
Spikes open, bracts short, dark brown; flowers white, spurs about 3 ins. long, cream tipped with pale pink; leaves about 2 ins. long, very stiff and close together. A short sturdy plant found in light shade, very floriferous and common around Nairobi.

Nairobi, Ngong, Narok, Teita Hills, Machakos, Mt. Kenya, Nanyuki.

6. *VANILLA ROSCHERI* Rchb.f.

Large leafless climber with strong succulent stems, flowers pure white with apricot shading in throat, no spur. In forest and dry scrub.

Coast and Nyika.



Section No. 22.

Epiphytic Orchids, flowers white or cream, $\frac{1}{2}$ - 1 in. in diameter, with spurs 2 ins. long and over.

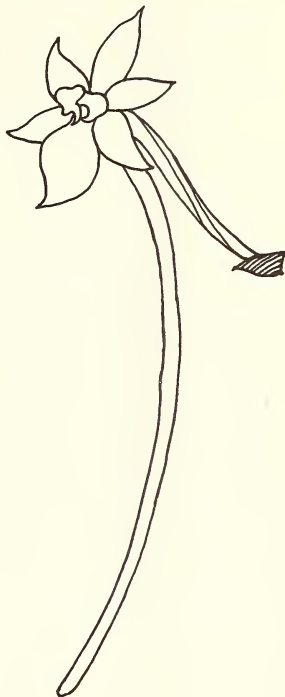
1. RANGAERIS MUSCICOLA (Rchb.f.) Summerh.

(= Aerangis floribunda Summerh.).

Fairly strong growing plants, flowers sweet scented, pure white, but turning orange when fading, in slender few-flowered spikes, from the base of the plant, bracts very short, dark brown, ovary green, spur 3 - 4 ins. long; leaves 3 - 6 ins. long and $\frac{1}{2}$ - $\frac{3}{4}$ in. wide, crowded.

Found in dense shade at fairly high altitudes.

Mt. Elgon, Kericho, Kakamega, Kiambu.



Section No. 23.

Epiphytic Orchids, flowers white or cream, $\frac{1}{2}$ - 1 in. in diameter with spurs less than 2 ins. long.

1. AERANGIS UGANDENSIS Summerh.

A strongly growing plant, flowers pure white in open spikes up to 6 ins. long produced from the base of the plant; leaves broader towards apex than at base, rather leathery, asymmetrically lobed at apex. The curious absence of any midrib is a useful aid to identification. Found in dense shade in damp localities.

Kakamega, Kericho, Kaimosi, Elgon, Trans Nzoia.



2. ANGRAECUM ERECTUM Summerh.

Flowers white, solitary or in pairs, opposite a leaf, stalk and ovary pinkish, spur yellow or pale brown; leaves up to 2 ins. long very asymmetrically lobed at apex, and produced alternately up the stem.

Nairobi, Aberdares, Elgeyo, Kamasia, Mt. Kenya.



3. *YPSILOPUS LONGIFOLIA* (Krzl.) Summerh.

Flowers white, opening first at the tip of the spike; narrow tough stiff leaves; woody stem, usually pendulous.

Nairobi, Ngong, Aberdares.

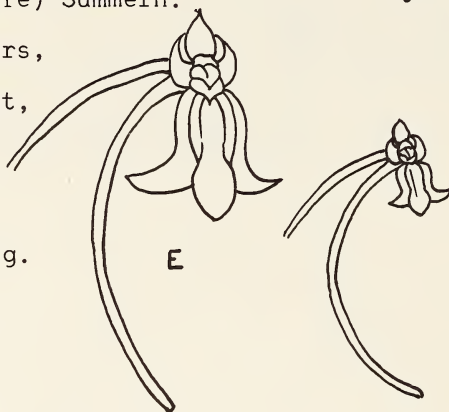


Section No. 24.

Epiphytic Orchids, flowers white or cream, less than $\frac{1}{2}$ in. in diameter, with spurs.

1. *ANGRAECOPSIS GRACILLIMA* (Rolfe) Summerh.

A smallish plant, spikes open, with very few flowers, on slender stems rising from the base of the plant, flowers pure white except for a pale orange coloured spot near the top of the ovary, spur about $1\frac{3}{4}$ ins. long; leaves few 3 - 4 ins. long. Found in shade.



Kakamega Forest, Kericho, Chepalungu Forest.

2. *ANGRAECUM HUMILE* Summerh.

A minute plant $\frac{1}{2}$ - $1\frac{1}{2}$ ins. high, spikes fairly open, lateral, rising opposite the alternate leaves, flowers white, rather less than $\frac{1}{10}$ in. across, ovary and spur, which is constricted in the middle, green; leaves about $\frac{1}{2}$ in. long and $\frac{1}{10}$ in. wide growing alternately up the stem. Found in dense shade.



Kakamega (August - September), Thika River, Kericho.

3. *MICROCOELIA GUYONIANA* (Rchb.f.) Summerh.

Leafless plants consisting of a very short pale brown scaly stem; a mass of roots radiating more or less horizontally from the stem; and, in their season, very numerous slender stalks bearing open spikes of minute white flowers. They often cling to the undersides of branches.

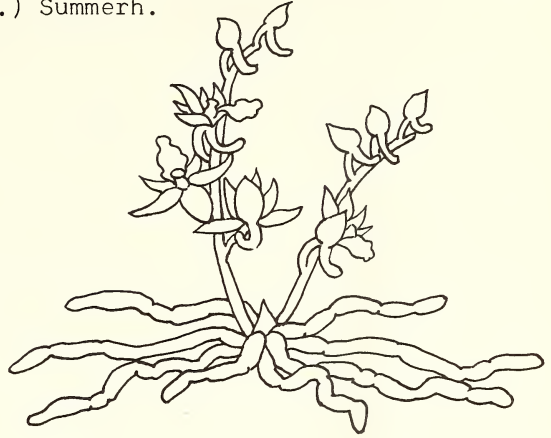


Nairobi, Eldama Ravine, West Pokot, Kakamega.

4. *MICROCOELIA KOEHLERI* (Schltr.) Summerh.
(= *M. pachystemma* Summerh.)

Leafless plant with
numerous short open
spikes of white flowers
shaded with pale pink.

Nyando Valley, Kisumu,
Kakamega.



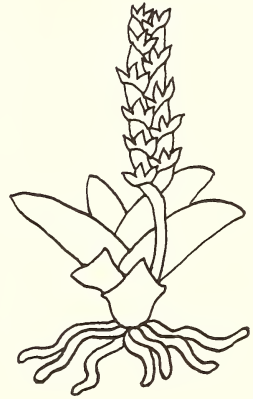
Section No. 25.

Epiphytic Orchids, flowers white or cream, less than $\frac{1}{2}$ in. diameter,
without spurs.

1. *BOLUSIELLA IMBRICATA* (Rolfe) Schltr.

Plants up to about 2 ins. high, spikes
crowded, unilateral, flowers pure white
minute, with pointed sepals and petals;
leaves leathery arranged fan-wise.

Kakamega, Kaimosi, Katamayu, Kavirondo Gulf.



2. *POLYSTACHYA ADANSONIAE* Rchb.f., see Section 30, No. 2.

3. *POLYSTACHYA EURYCHILA* Summerh.

Erect to 6 ins., pseudobulbs single, green,
spikes crowded, the flowers appear when
the plant is leafless, paired sepals white,
narrowly edged with mauve, odd sepal and
paired petals white, lip yellow edged
mauve.

Mt. Elgon, Cherangani.



4. POLYSTACHYA LATILABRIS Summerh.

Small plant to 4 ins, pseudobulbs very narrow and ending in a single leaf, flowers white with a purple column, 2 - 4 on a stalk from the tip of the pseudobulb.



Aberdares, Kericho, Elgon.

Section No. 26.

Epiphytic Orchids, flowers purple or mauve, stems pseudobulbous, flower stalks produced from below the pseudobulbs.

1. BULBOPHYLLUM BEQUAERTII De Wild. var. BRACHYANTHUM Summerh.

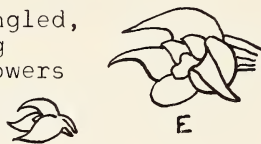
Erect to 12 ins. pseudobulbs single, elongated, spikes crowded, unilateral, flowers deep brownish-purple; leaves up to 6 ins. long and $\frac{3}{4}$ in. wide, 1 - 2 at the ends of the pseudobulbs.



Kakamega Forest, (May - June), Kericho, Kaimosi.

2. BULBOPHYLLUM CONGOLANUM Schltr.

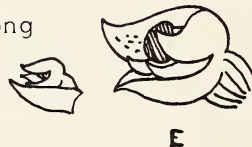
Erect to about 4 ins. pseudobulbs 4-angled, spikes rather close, ends of flowering stalk somewhat bulbous and fleshy, flowers deep purple; leaves about 3 ins. long growing in pairs at the apices of the pseudobulbs.



Coast.

3. BULBOPHYLLUM ENCEPHALODES Summerh.

Pseudobulbs single, markedly 4-angled, short, spikes crowded, bilateral on long stalk, bracts brownish-purple, more conspicuous than the flower, flowers brownish-purple, column purple; leaves up to 4 ins. long and 1 in. wide, solitary on each pseudobulb.



Kakamega (August - September), Kericho, Kaimosi.

Section No. 27.

Epiphytic Orchids, flowers purple or mauve, stems pseudobulbous, flower stalks produced from apices of the pseudobulb.

1. LIPARIS NEGLECTA Schltr. (formerly L. deistellii Schltr.)

Small plant to 9 ins., with plump pseudobulb and pleated pale green leaves, 4 - 6 leaves, the smallest near the base, flowers dull purple or pale green in a short open spike.



Mau Summit, Cherangani, Elgon, Kitale.

N.B. This species and L. deistellii still await final identification.

2. POLYSTACHYA BICARINATA Rendle

Flowers in panicles pinky-mauve with an elaborate white lip, drooping on a thin stalk; leaves up to 8 ins. long and 2 ins. wide, solitary at the ends of the pseudo-bulbs.



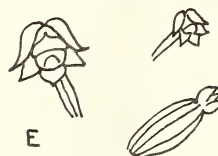
Mt. Elgon (February), Kericho.

3. POLYSTACHYA CULTRIFORMIS (Thou.) Lindl.

Flowers pale yellow, pale pinky-mauve, deep or medium pinky-mauve, white, see Section 33, No. 4.

4. POLYSTACHYA FUSIFORMIS (Thou.) Lindl.

Pseudobulbous with several internodes, flowers in rather drooping panicles, dull purple, the overblown flowers persist on the ovary as it develops; leaves 3 - 5 on pseudobulbs.



Nandi, Kakamega.

5. POLYSTACHYA INCONSPICUA Rendle

Erect to about 4 ins., spikes short, fairly crowded, flowers generally yellowish-green but sometimes purplish, the conspicuous part of the flower is the relatively tall hood with a groove down the centre; leaves up to about 3 ins. long and ½ in. wide, solitary at the apices of the pseudobulbs.



Mt. Elgon, Kakamega, Eldoret, Rumuruti, Mt. Kenya, Aberdares, Kericho.

6. POLYSTACHYA SIMPLEX Rendle (= P. aristulifera Rendle).

Erect to about 1 ft., spikes occasionally panicles, fairly close, at the apex of the stalk, drooping, flowers brownish-purple with pale yellow lip; stem pseudobulbous with several internodes, leaves 2 - 4 ins. long and about 1 in. wide, several on each pseudobulb.



Mt. Elgon, and throughout highlands at medium altitudes.

7. POLYSTACHYA TAYLORIANA Rendle (= P. miranda Krzl.)

Erect to about 1 ft., flowers pinky-mauve, with a white mark on lip, in panicles, the inflorescence appears when the plant is leafless; leaves numerous on the pseudobulb. There is a white form.

Growing on rocks among lichens in a shady situation.



Chyulu Hills, Teita Hills, Northern Frontier.

Section No. 28.

Epiphytic Orchids, flowers purple or mauve, stems not pseudobulbous.

1. DIAPHANANTHE RUTILA (Rchb.f.) Summerh.

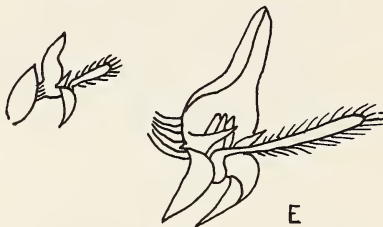
Flowers sometimes a rather dingy mauve, for further description see Section 31, No. 1.

Section No. 29.

Epiphytic Orchids, flowers green, stems pseudobulbous, flower stalks produced from below the pseudobulb.

1. BULBOPHYLLUM COCHLEATUM Lindl.

Plants erect to about 6 ins. including the solitary pseudobulb and leaves, flowers sessile in short erect, two-sided spikes on slender stalks rising from the base of the plant but enveloped in membranous scales as far as the base of the leaves, bracts brown, scaly, sepals and paired petals yellowish-green, lip rather reddish-brown hinged at base. Leaves generally two, 3 - 6 ins. long and $\frac{1}{2}$ in. wide at apices of the pseudobulbs, nearly symmetrically lobed at apex.



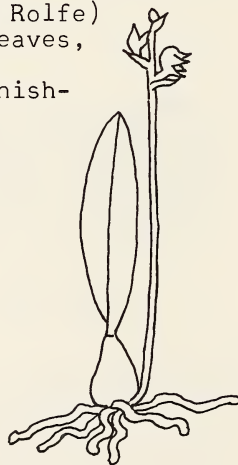
Kakamega Forest (July), Mt. Elgon, Trans Nzoia, Nandi, Kericho.

2. BULBOPHYLLUM INTERTEXTUM Lindl. (= B. viride Rolfe)

A very small plant as shown in drawing, leaves, pseudobulbs and flowers pale green, petals and sepals tipped with darker brownish-green.

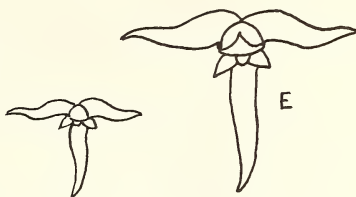
Found in forest.

Nyanza Province.



3. *BULBOPHYLLUM SCHLECHTERI* De Wild.

Plants erect to about 10 ins., stems of single conical pseudobulbs about 1½ ins. high and nearly 1 in. across at base, flowers in pendulous spikes up to 12 ins. long rising from the base of the plant, bracts brown-red, about half the length of the sepals, flowers rather yellowish-green; leaves up to 8 ins. long and 1 in. wide pointed at apex, one only at the apex of each pseudobulb.



Kaimosi, Nandi Forests, Kericho.

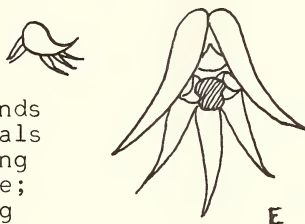
Section No. 30.

Epiphytic Orchids, flowers green, stems pseudobulbous, flower stalks produced from apices of the pseudobulb.

1. *LIPARIS NEGLECTA* Schltr., see Section 27, No. 1.

2. *POLYSTACHYA ADANSONIAE* Rchb.f.

Erect to some 6 ins., spikes rather crowded, flowers rather variable in colour but generally pale yellowish green with a touch of mauve at the ends of the paired sepals and column, sepals and petals all with long points giving the spike a somewhat hairy appearance; leaves three to four, 2 - 4 ins. long and nearly 1 in. wide. Found in light shade.



Kakamega (early rains), Elgon, Rongai, Londiani.

3. *POLYSTACHYA CAMPYLOGLOSSA* Rolfe.

Erect to about 5 ins., spikes open few-flowered, bracts short, sepals green, paired petals green, small, column and lip white; leaves 2 - 3 at apices of pseudobulbs.

Note: There are considerable colour variations in this plant. The flowers are sometimes pinkish inside.

Found in light shade, scrub etc. in rather dry country.



Nanyuki, Machakos, Molo, Donyo Sabuk, Elgon, Aberdares, Tinderet.

4. *POLYSTACHYA EURYGNATHA* Summerh.

Pseudobulb with several internodes and drooping panicles of bright green flowers, with a purple column.

Kericho, where it is common.



5. POLYSTACHYA GOLUNGENSIS Rchb.f. (= P. coriacea Rolfe)

The stem composed of a pseudobulb with a single internode, flowers are yellowish-green, in panicles, and rising from the apex of the pseudobulb; leaves some 4 - 6 ins. long and about 1 in. wide.



E

Nyando Valley.

6. POLYSTACHYA INCONSPICUA Rendle.

Flowers generally yellowish-green but sometimes purplish; for fuller description see Section 27, No. 5.

7. POLYSTACHYA SHEGA Krzl.

Erect to about 1 ft., flowers in open spikes on slender stalks, bracts short, brown, sepals brownish-green, petals rather yellowish-green, pseudobulbs small and rounded; leaves 2 - 3 up to about 8 ins. long and just over ¼ in. wide. Found in very light shade.



Nairobi, Ngong.

8. POLYSTACHYA TRANSVAALENSIS Schltr. (= P. nigrescens Rendle)

Erect to 1 ft. or more, flowers bright green, in panicles rising from the apex of the pseudobulb; leaves 2 - 5 ins. long and about ½ in. wide, 5 or more to a single pseudobulb. A plant of high altitudes.



Mt. Elgon, Aberdares, Molo, Ngong Hills.

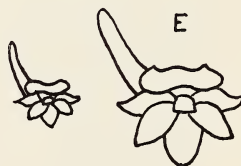
Section No. 31.

Epiphytic Orchids, flowers green, stems not pseudobulbous, long and straggly.

1. DIAPHANANTHE RUTILA (Rchb.f.) Summerh.

(= Rhipidoglossum rutilum (Rchb.f.) Schltr.)

A medium sized plant generally growing out at right angles to the tree, flowers dull green to dull purple, spirally arranged on slender pendulous lateral spikes; leaves purplish underneath, stem purplish.



E

Kakamega, Kericho, Mt. Kenya, Aberdares, Nairobi, Shimba Hills.

2. DIAPHANANTHE XANTHOPOLLINIA (Rchb.f.) Summerh.

(= Rhipidoglossum xanthopollinium Schltr.)

Rather like D. rutila, but the plant is larger, there is no purplish tinge, and the flowers are pale yellowish-green.



Kakamega.

3. *TRIDACTYLE SCOTTELLII* (Rendle) Schltr.

A straggly, untidy plant up to about 18 ins. long, flowers a rather dirty green, but turning more or less orange as they fade, growing solitary or in clusters of up to three on the stem; leaves alternate 2 - 4 ins. long and rather less than ½ in. wide. Frequently on the new growth of a long bare stem, flowers will be found.



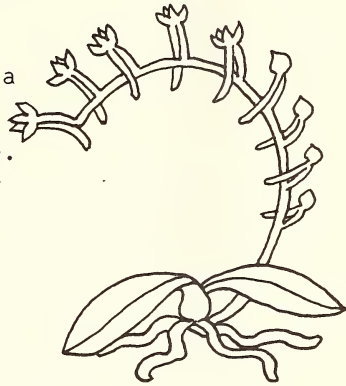
Mt. Elgon, Kaptagat, Aberdares, Nanyuki, Londiani, Tinderet, Nairobi.

Section No. 32.

Epiphytic orchids, flowers green, stems not pseudobulbous, short and compact.

1. *ANGRAECOPSIS AMANIENSIS* Summerh.

Minute plant with 2 small leaves and a tangle of dull green roots, flower stalk 2 ins. long, flowers green and opening first at the tip of the spike. Found in the upper branches of forest trees.

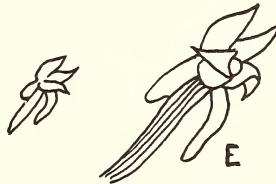


Elgon, Kakamega, Kaimosi.

2. *ANGRAECUM DIVES* Rolfe.

Small yellowish green flowers in an open spike.

All parts of the Coast, common especially on baobabs.



3. *ANGRAECUM GIRYAMAE* Rendle.

Flowers pale green with a white lip, see Section 21, No. 3.

4. *ANGRAECUM SACCIFERUM* Lindl.

A tiny plant about 2 ins. high, spikes 1 - 3 flowered on very slender stalks about 2½ ins. long, rising from the base of the plant, flowers pale green about 1/5 in. across, ovary and spur are twisted together but as the flower fades, the ovary straightens; leaves thin, 4 - 6 in number, up to 1½ ins. long and 1/5 in. wide.

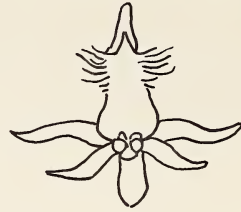
Found in deep shade.



Nandi Forest (June - July), Mt. Kenya, Aberdares, Ngong, Elgon, Mau Summit.

5. DIAPHANANTHE FRAGRANTISSIMA (Rchb.f.) Schltr.

A robust plant, pendulous when mature, but not straggly, flowers pale green and transparent, on very numerous lateral spikes, usually longer than the leaves; leaves fleshy and asymmetrically lobed, up to 12 ins. long and $1\frac{1}{2}$ ins. wide.



Kericho.

6. DIAPHANANTHE PULCHELLA Summerh.

A strongly growing plant, spikes slender pendulous, lateral; flowers yellowy-green, transparent, lip rolled back towards the spur; leaves up to about 4 ins. long and $\frac{1}{2}$ in. wide. Found in light shade.



Mt. Elgon, Mua Hills, Ngong.

7. DIAPHANANTHE QUINTASII (Rolfe) Schltr.

Flowers bright green, 4 - 6 on an open drooping spike, not transparent as are most Diaphanantes. A plant of high altitudes.



Aberdares, Mau- Molo, Elgon.

8. RANGAERIS BRACHYCERAS (Summerh.) Summerh.

Flowers yellowish-green, sweet-scented in very slender spikes rising from the base of the plant; leaves narrow, bilobed 4 - 6 in number, 3 ins. long, $\frac{2}{5}$ in. wide.



Mt. Elgon, Kakamega, Kaimosi, Kapsabet.

9. TRICERATORHYNCHUS VIRIDIFLORUS Summerh.

An almost minute plant, flowers pale green, about $\frac{1}{5}$ in. across, in few-flowered spikes on very slender stalks about 1 in. long rising from the base of the plant; leaves 3 - 6 somewhat leathery, $\frac{1}{2}$ - $\frac{3}{4}$ in. long and nearly $\frac{1}{5}$ in. wide, asymmetrically lobed at apex. Found in forest.



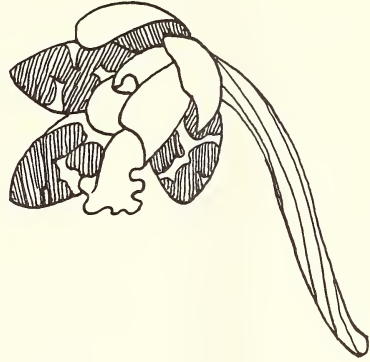
Kakamega (July - August), Elgon.

Section No. 33.

Epiphytic Orchids, flowers yellow, orange or brown, stems pseudobulbous.

1. *ANSELLIA AFRICANA* Lindl.

Erect to about 2 ft. 6 ins. with 8 - 10 leaves at the end of long stem-like pseudobulbs, an old plant will make a very large clump; flowers greenish-yellow, so heavily blotched with dark brown as to appear almost black, the column and lip are marked with light brown, and the tip of the column and the frilled part of the lip are bright yellow; they grow in open panicles at the tip of pseudobulbs. Found in deep shade.



Southern foothills of Elgon.

2. *ANSELLIA GIGANTEA* (Rchb.f.) var. *NILOTICA* (Bak.) Summerh.

The Leopard orchid. Erect to about 2 ft.

2 ft. with 8 - 10 leaves at the end of long stem-like pseudobulbs, flowers yellow with brown blotches, in large handsome open panicles terminating the pseudobulbs. Usually epiphytic but sometimes found on tree roots and rocks, in the open or in very light shade; an old plant makes a very large clump of stems. Flowers and inflorescences vary greatly in size.



Coast, West and East Pokot,
Elgon foothills, etc.
Very widespread.

3. *POLYSTACHYA BELLA* Summerh. (formerly confused with *P. obanensis* Rendle).

Erect to some 10 ins., spikes open, the whole flowers are yellow, rather long and narrow for a *Polystachya*. Pseudobulb green, very flattened; leaves 3 - 4, up to about 5 ins. long and nearly 1 in. wide. Found in damp shady localities.



Kericho (September and March).

4. *POLYSTACHYA CULTRIFORMIS* (Thou.) Lindl.

Erect to 1 ft. and more, from the apex of the pseudobulb, flowers in panicles, pale yellow or deep, medium or pale pinky-mauve; leaves up to 6 ins. long and nearly 2 ins. wide, growing singly at the apex of the pseudobulb.



Common throughout the highlands.

5. *POLYSTACHYA SPATELLA* Krzl.

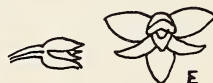
Flowers greenish-yellow, (sometimes tinged with purple) in open spikes of 3 - 6 flowers, scented by day; leaves soft, narrow, dark green, on thin erect to pendulous pseudobulbs of several internodes.



Common throughout the highlands.

6. *POLYSTACHYA STEUDNERI* Rchb.f.

Erect to 8 ins., flowers appear in dry weather when plant is leafless, spikes open, flowers with green sepals and yellow petals, sometimes in panicles; leaves up to about 5 ins. long and $\frac{3}{4}$ in. wide.
Common in light shade.



Mt. Elgon (January), Nandi, Kakamega, Northern Frontier.

7. *POLYSTACHYA STRICTA* Rolfe.

Erect to nearly 1 ft., pseudobulbs long and narrow, flowers yellow sometimes in panicles; leaves several, 2 - 4 ins. long and nearly 1 in. wide.
Common.



Kakamega (dry season), Nandi, Elgon, Londiani, Tinderet, Kaimosi.

8. *POLYSTACHYA UGANDAE* Krzl.

Erect to 8 ins., a delicate plant with small spikes with 2 - 6 blooms, flowers yellow with orange in centre; leaves soft, narrow, pale green, on thin pseudobulbs of several internodes.



Elgon, Kakamega, Trans Nzoia.

9. *STOLZIA REPENS* (Rolfe) Summerh. (= *Polystachya repens* Rolfe and formerly confused with *Bulbophyllum cupuligerum* Krzl.)

Creeping plant often making a thick mat, pseudobulbs are very small with a terminal thickening and usually two small leaves, flowers appear singly and are yellow or reddish-brown covered with reddish-brown veining.



Nairobi, Ngong, Kinangop, Kakamega, Elgon.

Section No. 34.

Epiphytic Orchids, flowers yellow, orange or brown, stems not pseudo-bulbous.

1. *ACAMPE PACHYGLOSSA* Rchb.f.

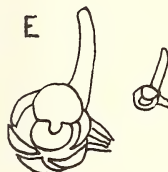
A large leafy succulent plant, spikes short and rather close, on a stalk about 4 ins. long, sepals and paired petals yellowish with reddy-brown spots not touching each other, there is a variation with the sepals and paired petals definitely pinkish, lip white, turning yellow with age, with a short pointed spur; leaves thick and fleshy 4 - 6 ins. long. Found in shade or in the open.



Coast.

2. *CHAMAEANGIS ODORATISSIMA* (Rchb.f.) Schltr.

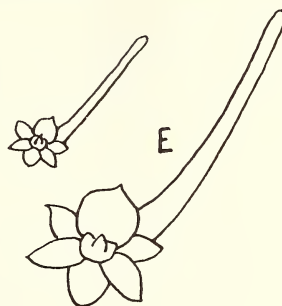
A stout leafy plant, generally pendulous, flowers yellow, in whorls, on long narrow pendulous lateral spikes; leaves numerous, 4 - 6 ins. long and about 1 in. wide.



Mt. Elgon (July), Trans Nzoia, Kericho, Kaimosi, Kakamega.

3. *CHAMAEANGIS ORIENTALIS* Summerh.

Flowers pale brownish-orange in whorls on upright narrow spikes up to nearly 1 ft. long rising from near the base of the plant; leaves drooping, brownish-green, fleshy, often looking shrivelled, up to 10 ins. long.



Mt. Elgon, Uasin Gishu, Kapsabet, Cherangani, Mt. Kenya, Chyulu Hills, Nyambeni Hills.

4. *CHAMAEANGIS VESICATA* Schltr.

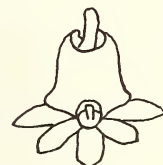
Flowers yellow or pale greenish-yellow, in whorls on upright spikes; leaves dark green, fleshy, often looking shrivelled. Plant very like *C. orientalis* but larger. Common east of the Rift at medium altitude.



Kamasia.

5. *DIAPHANANTHE LORIFOLIA* Summerh.

Flowers cream tipped with orange, translucent, in lateral spikes 4 - 5 ins. long; leaves thick, stout, crowded on the stem, up to 7 ins long and 1 in. wide, all lying in the same plane.

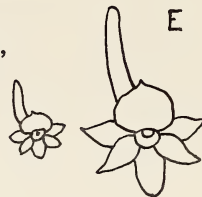


Mt. Elgon, Kakamega (June), Kericho, Kaimosi, Cherangani, S.W. Mau.

6. DIAPHANANTHE SUBSIMPLEX Summerh.

A plant with a long, straggling stem with leaves, roots and flowers at irregular intervals, flowers rather a dull yellow, translucent, in slender lateral spikes about 2 ins. long; leaves 1 - 2 ins. long and about $\frac{1}{2}$ in. wide.

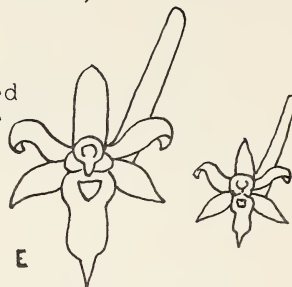
Mt. Elgon, Mau Forest, Bahati Forest, Aberdares, Mt. Kenya, Chyulu Hills.



7. TRIDACTYLE ANTHOMANIACA (Rchb.f.) Summerh.

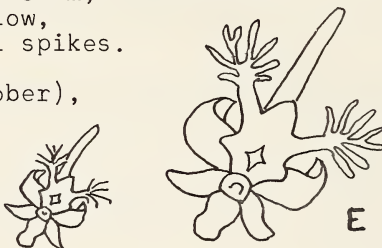
A large straggling plant with buff coloured flowers produced in ones and twos from the stem; leaves asymmetrically lobed.

Kakamega.

8. TRIDACTYLE BICAUDATA (Lindl.) Schltr. (= T. fimbriata Schltr.)

A plant with an elongated leafy stem, flowers unmistakable, pale yellow, often very numerous, in lateral spikes.

Kakamega (October), Elgon (October), Aberdares, Nairobi, Coast.



9. TRIDACTYLE FURCISTIPES Summerh.

A more compact plant than T. bicaudata, flowers buff, in lateral spikes, they open all at once and lie all on one plane.

A plant of high altitudes.

Kinangop, Mau-Molo, Cherangani.



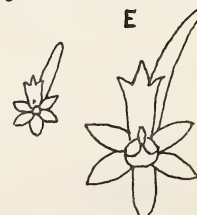
10. TRIDACTYLE SCOTTELLII (Rendle) Schltr.

The flowers of this plant first open a dirty green but turn orange as they fade, see Section 31, No. 3.

11. TRIDACTYLE TRIDENTATA (Harv.) Schltr.

A pendulous branched leafy plant, flowers in axillary clusters on the stem, buff-coloured; leaves alternate, narrow, and up to 2 ins. long.

Kakamega.



Section No. 35.

Epiphytic Orchids, flowers red or pink.

1. POLYSTACHYA BICARINATA Rendle.
Flowers pinky-mauve, see Section 27, No. 2.
2. POLYSTACHYA CULTRIFORMIS (Thou.) Lindl.
Flowers dark purple, pinky-mauve or yellow, see Section 33, No. 4.
3. POLYSTACHYA TAYLORIANA Rendle.
Flowers pinky-mauve, see Section 27, No. 7.

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(Received for publication 1st. November 1962)

A THIRD SPECIES OF NESOPUPA (MOLLUSCA: PUPILLIDAE) IN KENYA

By

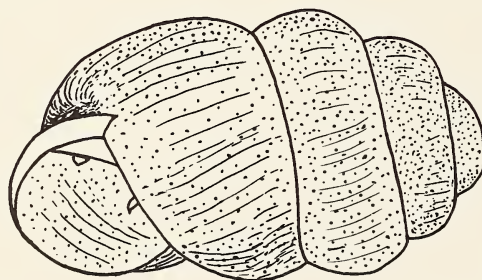
B. VERDCOURT

Whilst sitting in the shade of a baobab tree on the Likoni side of Mombasa Island in September 1961, I noticed a minute snail on the tip of the leaf of an Indigofera. An intensive search failed to yield any more specimens although it produced certain other species of mollusc including Pupoides coenopictus samavaensis (Palad.), Edouardia tumida (Taylor), Opeas lamoense M. & P., Opeas spp., Succinea concisa Morelet and Trochonanina sp. cf. mozambicensis (Pfr.).

The minute snail was clearly a member of the genus Nesopupa which is widely spread throughout the tropics. Two species are already known from East Africa, both only found once. Unfortunately the single specimen obtained was not fully adult. In its dentition and roughened periostracum, caused by striation mixed with a shagreening of small dots, it comes very close to the Mauritian species N. peilei Madge. I have shown the specimen to both Dr. Adam, the expert on the family Pupillidae, and Dr. Madge, the expert on the snails of Mauritius, and both agree that it is very close to N. peilei but too immature for certain determination. N. peilei of which I have examined the holotype in the British Museum (Nat.Hist.) has a broader form and, when adult, a thickened peristome.

Further material is required; it is of course possible that the shell was introduced. Minute and even quite large shells are readily spread about the world by commerce.

Can no shell collector on our coast be coaxed away from the blatantly coloured and vulgar marine species and tempted to collect minute land shells?!



(Received for publication 16th. April 1963)

EAST AFRICAN PLANTAINS

By

B. VERDCOURT

Five species of plantain are recorded from East Africa in the collections of the East African Herbarium. Three of these are introduced weeds; the remaining pair are natives, each closely related to the other.

The species can readily be separated from each other by the following key.

Key to Plantago Species in East Africa

Plant annual with developed stem; leaves

opposite, linear P. psyllium var. stricta

Plant perennial; leaves and flower stalks in

a rosette i.e. with no well-developed stem:

Leaves lanceolate P. lanceolata

Leaves ovate:

Leaves shallowly palmately 5 - 7-lobed P. palmata

Leaves not deeply lobed:

Leaves entire or wavy; gradually cuneate at
the base into a broadly winged petiole,
mostly glabrous. Flower spikes almost
continuous

P. major

Leaves slightly dentate; truncate or
abruptly cuneate at the base into a
narrow hairy petiole. Flower spikes
with flowers well separated at the base

P. fischeri

Plantago major L.

A common European weed.

KENYA - Nairobi River, 1665 m., Aug. 1960, Syed T. Hussain

H. 221/60 (EA) and same locality, grassy banks below

Coryndon Museum, 26 Jan. 1961, Verdcourt 3046 (EA)

Plantago lanceolata L.

A common European weed.

TANGANYIKA - Lushoto District: Shume Forest Reserve, Aug. 1955,

Semsei 2331 (EA); Lushoto, 1500 m., 11 Jan. 1941,

Greenway 6096 (EA); Gare Mission, 1500 m., 14 Jan. 1941,

Greenway 6108 (EA).

Plantago palmata Hook.f.

This is a widespread plant in Africa, being known from evergreen forest on the Cameroons Mt. (2100 m.), Fernando Po (2400 m.), Kivu and Virunga Mts. (2500 m.) and also in Ethiopia (3000 m.) as well as from the following East African localities. It is an example of one

of the submontane plants which have very disjunct distributions. There are so many specimens in the herbarium that I have not cited them individually.

UGANDA - Ruwenzori, Kibale, Kigezi.

KENYA - Kapenguria, Elgon, Bondui, Sotik, Thomsons Falls, Elburgon, Mau Forest, Katamayu, Kimakia, Kinangop, Mt. Kenya.

TANGANYIKA - Kilimanjaro, Arusha area, Mporoto Mts., Rungwe (1380 - 3150 m.).

Plantago fischeri Engl.

This plant is known at present only from Mt. Meru and Kilimanjaro and it may be a local endemic plant which has evolved in that area. Engler originally based the plant on two collections, one from Mawenzi at 2700 m. (Volkens 948) and the other from the Massaihochland, Abori (Fischer 512) a locality which is in Kenya. I have not seen either of these specimens, but Pilger, in his monograph in the Pflanzenreich of the world's species of this family states that Engler made a bad mistake. Fischer 512 is actually P. palmata but Volkens 948 is a species distinct from P. palmata and is the lectotype of P. fischeri. Since Engler actually named the species after Fischer one might suspect that the Fischer syntype should be made the lectotype and the name dismissed as a synonym of P. palmata. The description of P. fischeri, however, depends mostly on the Volkens sheet and Pilger has clearly associated the name with that although he does not actually use the word lectotype. The only two specimens in the East African Herbarium are as follows.

TANGANYIKA - Moshi District: Kilimanjaro, Muë-Bach, Urwald über Moschi, 2800 m., 8 Oct. 1901, Uhlig 135 (EA): bluten frischgrün, Stbgef. grauviolett. Arusha District: Mt. Meru, in montane forest, 2700 m., 30 Oct. 1959, Carmichael 727 (EA): herb with white pubescent stems and leaves and whitish flowers. Another specimen from the Lumi Ravine, 2610 m. (Volkens 1901) is cited in the Flora of Tropical Africa 5: 504 (1900) by Baker. Pilger in his monograph makes this the type of a f. supina and gives the locality as Kitorovi-Baches über Mku, 2900 m. He also cites several other specimens from Kilimanjaro.

The plant is very easily passed over as P. palmata but the undivided leaves and looser spike clearly distinguish it.

Plantago psyllium L. var. stricta (Schousb.) Maire

Known from the Sudan, Ethiopia, North Africa and the Middle East. This has presumably been introduced into Ngorongoro as an impurity in imported seed; farming activities went on in the neighbourhood during the German period. It should be noted, however, that such typically temperate plants as Ranunculus sceleratus L. have also been recorded from Ngorongoro and this plantain is wild in Ethiopia. There is much affinity between the Crater Highlands and the Ethiopian highlands.

TANGANYIKA - Serengeti: Ngorongoro Crater, crater floor, 1500 m., 3 March 1961, J.B. Newbould 5687 (EA): ephemeral common in overgrazed Pennisetum massaicum grassland, flowers yellow and Malenda, 2400 m., J.B. Newbould 5838 (EA).

(Received for publication 16th. April 1963)

NEW BUTTERFLIES FROM THE KIGOMA AREA OF WESTERN TANGANYIKA

By

R.H. CARCASSON

A large collection of Lepidoptera from Kabogo Head, south of Kigoma, on the eastern shore of Lake Tanganyika has been submitted for identification by Dr. J. Itani and Mr. S. Azuma of the Kyoto University Primate Research Expedition.

The material examined so far was collected during the years 1961, 62 and 63 and a comprehensive account of the Lepidoptera of Kabogo Head will be published when the expedition has completed its field work in Africa. In the meantime some general notes on the Lepidopterous fauna of the area, together with the description of some new forms, would appear desirable.

The bulk of the collection has been assembled near a stream which runs into Lake Tanganyika between Kigoma and the Kungwe Mahare Mountains. There is some riverine forest on the banks of the stream, but the surrounding country is mainly Brachystegia woodland. The altitude is approximately 800 m. above sea level and the latitude about 5. 6' South.

The material collected so far is a surprising mixture of eastern and western elements as well as including many of the species characteristic of Brachystegia woodland which also occur in Angola, Katanga, N. Rhodesia and southern Tanganyika.

There are also a number of new, very distinct and apparently endemic species and subspecies, some of which are described below.

The following are some of the more interesting eastern species and subspecies which have turned up at Kabogo Head:

Charaxes protoclea azota Hewitson
Charaxes pythodorus nesaea Grose-Smith
Charaxes brutus natalensis Staudinger
Precis natalica natalica Felder
Graphium porthaon Hewitson
Papilio ophidicephalus ophidicephalus Oberthür
Coeliades sejuncta Mabille & Vuillot

There is a large number of species typical of the equatorial forest of the Congo and West Africa; the following have not been previously recorded from any part of East Africa, not even from Uganda, which is very rich in Congo species:

Palla publius Staudinger
Bematistes vestalis congoensis Le Doux
Bematistes epiprotea Butler

NOTE: In the following text, the initials K.U.A.P.E. are an abbreviation of "Kyoto University African Primate Expedition".

CHARAXES ZELICA Butler, TOYOSHIMAI ssp. nov.
(Nymphalidae, Charaxidinae)

MALE

Size and shape, as in nominate race.

Upperside

Similar to nominate race, but all blue spots very much larger, particularly in hindwing. Some specimens have narrow subterminal blue streaks in internervular spaces of hindwing, especially near tornus.

Underside

As in nominate race.

FEMALE

Unknown.

Holotype ♂ Makuyu, Kigoma, Tanganyika, XII-1961. K.U.A.P.E. to be deposited in British Museum (Nat.Hist.)

Paratype ♂♂. Five, same data as above, to be deposited in Coryndon Museum and in Kyoto University.

This subspecies is dedicated to Mr. A.K. Toyoshima of K.U.A.P.E. Ch. zelica toyoshimai has so far only been taken on the eastern shore of Lake Tanganyika, which must be near the south-eastern limit of the range of this species.

CYMOTHOË LURIDA Butler, AZUMAI ssp. nov.
(Nymphalidae, Nymphalinae)

MALE

Almost identical to C. lurida tristis Overlaet, described from the eastern Congo, but clearer and paler ground colour, dark marginal markings slightly reduced.

FEMALE

Upperside

Darker than ssp. tristis Ov. and ssp. butleri Grünberg. Orange brown marginal areas of hindwing almost completely eclipsed by extension of dark brown basal-discal area. White markings of forewing much broader, clearer and more conspicuous than in other races.

Underside

Variable in both sexes, as in other races.

Holotype ♂. Makuyu, Kigoma, Tanganyika. XII-1961, K.U.A.P.E.

Allotype ♀. Same data as above.

Two Paratype ♂♂ and two Paratype ♀♀, same data as above, to be deposited in Coryndon Museum and Kyoto University.

Holotype and Allotype to be deposited in British Museum (Nat.Hist.).

This subspecies is dedicated to Mr. S. Azuma of K.U.A.P.E.

DIESTOGYNA ITANII sp. nov. (Nymphalidae, Nymphalinae)

Closely allied to D. barombina Aurivillius and to D. incerta Aurivillius from which it differs in the greater development of the pale markings in the forewing above and in the dark blue areas being replaced by slate-purple (R)*. The female is not of the barombina type, but is very similar to that of D. saphirina Karsch.

MALE

Antennae. Blackish brown above, tipped with red brown, ferruginous below.

Head and Body. Uniform blackish brown above, sayal brown (R) below.

Legs. Sayal brown (R).

Upperside

Forewing. Ground colour dark blackish brown with dark slate-purple (R) wash, occupying basal 2/3 of wing. Four narrow, irregular pale pinkish violet lines across cell, from costa to cubitus, with a somewhat ochreous tinge near costa; a similar such line closing discoidal cell; a diffuse pale violet line from origin of vein 2 to inner margin at 1/3 from base. A series of diffuse pale violet internervular lunules edged proximally with black, somewhat more distinct and ochreous near costa, forming an evenly curved postmedial band from costa to inner margin with slight indentations at veins 2, 3 and 4 and in cellule lb. A series of small internervular whitish dots edged distally with black between postmedial band and margin, well defined at costa and in cellules 3, 4 and 5, obsolescent elsewhere, the one in 5 being placed nearer to outer margin than remainder. A broad, straight submarginal row of diffuse blackish internervular spots from apex to tornus. Cilia blackish brown, tipped with white at apex, tornus and between ends of veins.

Hindwing. Ground colour as above, slightly paler and sometimes rufous in upper portion of cell and at base of costa. Dark slate-purple (R) wash from base of discoidal cell to postdiscal area between abdominal fold and vein 5. Faint blackish spot in centre of cell; a faint narrow dark line parallel and proximal to outer edge of cell; a second similar line parallel and distal to outer edge of cell. A darker, more diffuse medial line from costa to vein 2. Occasionally a very faint, diffuse rufous spot in base of cellule 4. Two postdiscal rows of faint blackish internervular spots. Abdominal fold dark brown. Cilia uniformly blackish brown.

Underside

Almost identical to D. barombina Aurivillius.

Forewing. Ground colour sayal brown (R) to Verona brown (R). Markings in cell as above, forming two narrow dark brown more or less reniform rings surrounded by whitish scales, particularly near costa. Postmedial band same shape as above, dark brown and narrow with broad whitish distal edge, particularly in cellules 4, 5 and 6. A row of dark brown internervular dots from cellule lb to cellule 6, edged proximally with whitish scales; a whitish dot at costa halfway from postmedial band to apex. A submarginal series of internervular dark brown arrow shaped markings with apex pointing outwards, from cellule lb to apex. Ground colour outside postmedial band, from vein 3 to inner margin darker (Saccardo's umber (R)) than elsewhere. Cilia as above.

* Colours marked (R) are taken from Ridgway's "Color standards and Color nomenclature".

Hindwing. Ground colour sayal brown (R) to Verona brown (R), somewhat darker and brighter than forewing. A faint buff spot near base of cellule 7. A small narrow blackish ring above centre of discoidal cell surrounded by buff scales and surmounted distally by a cinnamon buff (R) spot. A diffuse buff spot, mixed distally with dark brown scales near base of cellule 1c. A narrow blackish line forming an irregular curve from vein 8 to 1a enclosing basal third of wing strongly angled distad at veins 5, 2 and 1b. A faint paler area immediately outside blackish line in cellules 6 and 7; a prominent triangular blackish spot with diffuse distal margins with base resting on outer edge of blackish line in base of cellules 4 and 5. Some blackish scales outside blackish line in cellules 2 and 3 and a diffuse whitish spot mixed distally with blackish scales outside blackish line in cellule 1c. A complete, evenly curved series of black internervular streaks edged proximally with a few paler scales from vein 8 to vein 1b, followed distally by a parallel series of submarginal blackish arrow-shaped markings, as in forewing. Cilia uniformly dark brown. The markings of the underside correspond very closely with those of the upperside.

Measurements. Forewing, base to apex 23 - 26 mm.

Genitalia. Uncus bifid, valves simple, elongated and hairy, as in other members of the genus.

FEMALE

Very similar to the ♀ of D. saphirina Karsch, but differs above in the darker tinge of the brown ground colour, in the paler, less ochreous tinge of the light markings, in the white postdiscal spots of the forewing being larger and better defined, in the absence of the ochreous streaks and suffusion which invade much of the dark brown ground colour in saphirina, and in the smaller size of the postdiscal series of brown spots in the hindwing.

Antennae. As in male.

Body. Blackish brown above, with some pale olive brown scales and hairs; below as in male, but paler.

Legs. As in male, but paler.

Upperside.

Forewing. Ground colour clove brown (R). Five narrow irregular ivory yellow (R) lines from cubitus to costa. A broad, fairly straight and regular ivory yellow band from costa to vein 2, with inner edge somewhat displaced towards outer margin in cellule 2. A faint, pale, narrow, irregular suffused line from cubitus to inner margin at $\frac{1}{4}$ from base. A more pronounced, irregular pale band sharply defined proximally from vein 2 to inner margin, halfway from base. A curved series of prominent whitish dots in cellules 3, 4, 5, 6 and 7. A faint, regular, dark brown submarginal band somewhat constricted at the veins, from apex to tornus.

Hindwing. An olive brown (R) area with regular edges occupies basal third of wing and encloses a faint crescent edged with ivory yellow which closes discoidal cell. Discal area, from dark basal area to submarginal series of dark brown lunules, ivory yellow except in areas 1b and 1c, where brown marginal band invades pale discal area. A postdiscal series of rather diffuse internervular dark brown spots, evenly curved from vein 1b to vein 8; a submarginal series of dark brown internervular crescentic markings. Marginal band clove brown (R), but paler than in forewing.

New Butterflies from Kigoma



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1. *Diestogyna itanii* ♂ (upperside). 2. *D.itanii* ♂ (underside).
3. *Amauris egialea makuyuensis* ♂ (upperside).
4. *Diestogyna itanii* ♀ (upperside). 5. *D.itanii* ♀ (underside).
6. *Cymothoë lurida azumai* ♀ (upperside).
7. *Graphium almansor kigoma* ♂. 8. *G.almansor kigoma* ♀.
9. *Charaxes zelica toyoshimai* ♂ (upperside)

(reduced by 2/3)

Underside.

Similar to ♂, but much paler. A broad diagonal whitish band from costa to vein 2 of forewing.

Hindwing. Very similar to that of D. saphirina Karsch ♀, but distal margin of basal area somewhat more evenly curved.

Measurements. Forewing, from base to apex, 28 - 31 mm.

Holotype ♂. Makuyu, Kigoma, Tanganyika, XI-1961, K.U.A.P.E.

Allotype ♀. Makuyu, Kigoma, Tanganyika, V-1962, K.U.A.P.E.

Four Paratype ♂♂ and three Paratype ♀♀, same data as above, to be deposited in Coryndon Museum and Kyoto University.

Holotype and Allotype to be deposited in British Museum (Nat.Hist)

This species is dedicated to Dr. J. Itani of Kyoto University.

AMAUROS EGIALEA Cramer, MAKUYUENSIS ssp. nov. (Danaidae)

MALE

Similar to A. egialea hyalites Butler, described from Angola, but differs in having smaller subapical white spots and much more restricted white discal area in hindwing.

FEMALE

Unknown.

Holotype ♂. Makuyu, Kigoma, Tanganyika, II-1962, to be deposited in British Museum (Nat.Hist.).

One Paratype ♂ same data as above, to be deposited in Coryndon Museum, Nairobi.

GRAPHIUM ALMANSOR Honrath, kigoma ssp. nov.
(Papilionidae, Papilioninae)

A very distinct, though variable subspecies, apparently confined to the Kigoma area.

Much larger than other races, approaching the form poggianus Honrath of G. almansor almansor in the shape and development of the pale markings.

MALE

Upperside

Forewing. Pale markings white, not ochreous as in ssp. uganda Lathy. Subapical markings well developed and confluent, as in form poggianus Honrath, not split into three narrow streaks as in ssp. uganda, ssp. escherichi Gaede, ssp. almansor and ssp. carchedonius Karsch. A small white spot near apex of discoidal cell present in some specimens. Large white spot in centre of discoidal cell always contiguous with white spot in cellule 3, triangular, tapering towards costa, sometimes not reaching it, with apex often broken off to form a small separate spot. In almansor and carchedonius this spot usually reaches costa, but not the cubitus, being separated from the spot in 3 by a broad dark streak. Light spots in 1a and 1b very large. Light spot in 2 small or absent, being well developed in only one individual examined. Spot in 3 always very large and always reaching cubitus. Spot in 4 small or absent. Occasionally traces of submarginal spots in 1b, 2 and 3.

Hindwing. Pale discal area more restricted than in other races, only reaching distal quarter of discoidal cell. Distal margin of pale area irregular but well defined, never smudged along the veins. Twin pale postdiscal streaks in cellules 2,3,4 and 5 small or absent, pale submarginal spots usually absent, sometimes represented by traces. Occasionally a diffuse red spot at edge of pale discal area between dark internervular streaks in cellules 6 and 7.

Underside

As in other races. Red basal area and black basal dots always well developed.

Measurements. Forewing, base to apex, 39 - 44 mm.

FEMALE

Similar to male, but wings more rounded, ground colour paler.

Measurements. Forewing, base to apex, 46 mm.

Holotype ♂. Makuyu, Kigoma, Tanganyika, I-1962, K.U.A.P.E.

Allotype ♀. Makuyu, Kigoma, Tanganyika, V-1962, K.U.A.P.E.

Eight Paratype ♂♂ and one Paratype ♀, data as above, to be deposited in Kyoto University, Coryndon Museum and British Museum (Nat.Hist.).

Holotype and Allotype to be deposited in British Museum.

(Received for publication 25th. November 1963)

NEW AFRICAN BUTTERFLIES

By

R.H. CARCASSON

YPITHIMA RHODESIANA Carcasson (Coryndon Mem.Mus.Oc.Pap. No. 7, 1961)
(Satyridae, Satyrinae)

Several more specimens of this species were collected recently in the Mpanda district of western Tanganyika by Mr.J. Kielland of Oldeani, Tanganyika. They belong to the wet season form and are considerably darker and brighter than the Holotype. This small series includes a specimen of the hitherto unknown female which is described below.

FEMALE

Wings more rounded than male. Head, body and legs as in Holotype, but a little darker.

Upperside.

Ground colour darker and glossier than in Holotype, with a faint coppery tinge in some lights. Outer ring enclosing ocellus of forewing very distinct, pointed towards tornus, reaching cellule 1b. Area enclosed by outer ring somewhat paler than remainder of wing. Distal edge of outer ring parallel with outer margin. Dark submarginal and marginal lines of hindwing better defined than in Holotype. A faint, dark evenly curved medial line from vein 2 to vein 6 of hindwing.

Underside

Similar to Holotype, but brown irrorations darker and more distinct; proximal and lower portions of outer ring enclosing ocellus, clearly visible. Medial line of hindwing more distinct than above, somewhat bent at vein 5 and continued from inner margin to costa at a point $2/3$ from base. A small vestigial ocellus without pupil in cellule 2, near margin.

Measurements. Forewing, base to apex, 17 mm.

Neallotype ♀. Iloba, Mpanda district, western Tanganyika, 12-VII-1960, J. Kielland, to be deposited in British Museum (Nat.Hist.).

Most of the differences between the Holotype and the Neallotype are seasonal and not sexual, as they also apply to the Mpanda males. The Holotype belongs to the dry season form.

NEOCOENYRA BIOCULATA sp. nov. (Satyridae, Satyrinae)

Differs from all other species of Neocoenyra in having broad abruptly thickened, laterally compressed antennal club, and a single pupil in the apical ocellus.

MALE

Antennae. Shaft and club, black above; below, shaft black with a white spot near distal end of each segment; club silvery white below.

Body and Head. Dark brown above, slightly paler below.

Legs. Same shade of brown as body below.

Upperside

Forewing. Ground colour uniform sepia brown (R); a rounded black subapical ocellus with a single large white pupil in cellule 5, surrounded by a thick red brown (hazel, R) ring with irregular edges. A hazel (R) streak in cellule 3 and occasionally a second such streak in cellule 2.

Hindwing. Uniform sepia (R). A submarginal series of internervular hazel (R) spots with diffuse edges, particularly well developed in cellules 3 and 4, reduced to a few red brown scales in 2, 5 and 6, sometimes enclosing a small black ocellus with a single white pupil in cellules 2 and 3.

Underside.

Forewing. Ground colour very slightly paler than above. Apical ocellus as above, but surrounded by a regular, orange brown ring which is enclosed by an incomplete, indistinct and irregular dark line. Part of the area between the inner orange brown ring and the interrupted outer ring, occupied by hazel (R) scales, particularly the proximal and lower portions. Hazel (R) streak in cellules 3 and 2 surrounded by indistinct dark line, the one in 2 sometimes obsolete and replaced by an indistinct dark spot.

Hindwing. Ground colour as above, but lightly speckled with pale grey scales. A large black ocellus with single white pupil surrounded by a regular orange brown ring, in distal portion of cellule 6. Two similar, but smaller ocelli, one in cellule 2 and one in cellule 3. Sometimes an indistinct, irregular dark antimedial line and a similar medial line.

Measurements. Forewing, base to apex 15 - 18 mm.

Genitalia. Uncus short, falces long and robust; aedeagus long and stout, valves short and broad, with blunt apices; juxta short and stout.

FEMALE

Very similar to male, but larger and paler, with orange red areas better developed. Pale speckling and dark markings of hindwing below, more pronounced.

Measurements. Forewing, base to apex, 17 - 20 mm.

Genitalia. Bursa rounded, signa absent.

Holotype ♂. Tsenga Mountains, 2950 ft., Mwanza, southern Nyasaland, 20-XII-1962, J.D. Handman.

Allotype ♀. Same locality as above, 15-IX-1962, D.R. Gifford.

Six ♂ Paratypes and eight ♀ Paratypes, all from the same locality, in Coryndon Museum, Transvaal Museum, Royal Scottish Museum, National Museum, Bulawayo and in collections. J.D. Handman and H. McKay.

Holotype and Allotype to be deposited in British Museum (Nat.Hist.).

ACRAEA TERPSICORE L., LEGRANDI, ssp. nov. (Acraeidae)

This new race was recently discovered in the Seychelle Islands by Dr. H. Legrand. It is nearest to the African race neobule Doubleday & Hewitson and differs considerably from the Arabian race (arabica Reb.), from the Madagascar race (mahela Bsd.) and from the nominate Indian race.

MALE

Upperside.

Very similar to the dry season form of neobule Dbl. & Hew., but ground colour lighter and more pinkish, black spots generally smaller, black suffusion at base of hindwing reduced, black marginal band of hindwing narrower.

Underside

Similar to neobule, but black marginal band of hindwing too narrow to enclose proximal portion of internervular lunules fully. A bright ochreous pink submarginal band in hindwing; cellules 1a, 1b and 1c of hindwing bright ochreous pink.

FEMALE

Similar to male, but ground colour not so pink. Hindwing below lacks ochreous pink submarginal band and ochreous pink areas in 1a, 1b and 1c.

Holotype ♂. Aldabra Island, Seychelles, 18-XI-1959. H. Legrand.

Allotype ♀. Aldabra Island, Seychelles, 7-X-1959, H. Legrand.

Seven Paratype ♂♂ and three Paratype ♀♀, all collected in 1959 on the islands of Aldabra and Cosmoledo (Seychelles), to be deposited in Coryndon Museum, Nairobi, and in Museum National d'Histoire Naturelle, Paris.

Holotype and Allotype to be deposited in British Museum (Nat.Hist.).

NOTE Some of these specimens were bred ex Turnera ulmifolia L. (Turneraceae).

New African Butterflies



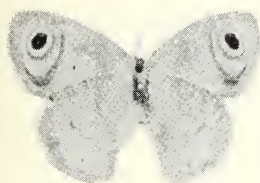
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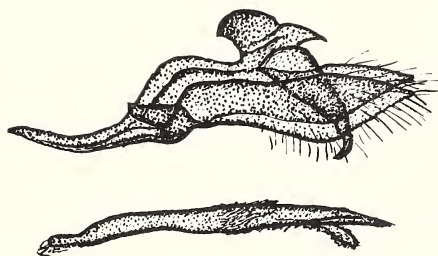
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1. *Neocoenyra bioculata* ♂ (underside).
2. *Neocoenyra bioculata* ♀ (underside).
3. *Acraea cerasa kiellandi* ♀ (upperside).
4. *Ypthima rhodesiana* ♀ (underside).
5. *Aphnaeus coronae littoralis* ♂ (underside).
6. *Aphnaeus flavescens williamsi* ♀ (underside).
7. *Acleros sangoanus* ♂ (underside).
8. *Neocoenyra bioculata*, male genitalia x 20.
9. *Acleros sangoanus*, male genitalia x 20.

(Natural size)

ACRAEA CERASA Hewitson, KIELLANDI, ssp. nov. (Acraeidae)

FEMALE

Nearest to A. cerasa cerita Sharpe from Uganda.

Upperside

Forewing. Ground colour brighter and more orange than in other races. Blackish grey apical area and blackish grey band separating orange basal area from distal hyaline area more sharply defined than in other races and showing greater contrast with adjacent orange and hyaline areas. Black dots in discoidal cell, at base of cellule 2, near base of cellule 1b and near centre of 1b with sharp edges.

Hindwing. Entirely orange brown, the hyaline marginal band of other races being reduced to a very narrow, sharply defined black terminal line. Dark suffusion at base almost absent. All black dots small but sharply defined, submarginal series complete.

Underside

As in cerasa and cerita, but all black dots present, small and sharp. Basal area of forewing brighter orange than in other races.

Holotype ♀. Wanzizi, Mpanda District, Western Tanganyika, 6-X-1963, J. Kielland, to be deposited in British Museum (Nat.Hist.).

One Paratype ♀, same data as above, in Coryndon Museum, Nairobi.

This interesting new subspecies has so far been taken only in relic forests of the Mpanda District, some 350 miles south of the nearest recorded locality for the Uganda race and some 500 miles west of the nearest recorded locality for the nominate race (Morogoro). A.cerasa cerasa may well turn up in less distant localities such as the Iringa, Mbeya and Njombe districts, but even so would appear to be isolated from the habitat of kiellandi by the central Tanganyika plain, in the same way as the range of cerita is isolated from that of kiellandi by the low-lying Malagarasi basin.

APHNAEUS FLAVESCENS Stempffer, WILLIAMSI ssp. nov.
(Lycaenidae, Aphnaeinae)

MALE

Upperside Differs from fresh specimens of the nominate race in the bluer, less greenish tinge of the light markings, in having narrower, less conspicuous pale abdominal rings, and in the presence of orange scales and cilia near the tornus of the hindwing.

Underside Differs from nominate race in having much thicker dark rings surrounding the silver spots, and in the presence of a large, bright orange spot near the tornus of the hindwing. There are also differences in the arrangement of the silver spots. The spots near the base of cellules 5 and 6 of the forewing are in line in williamsi, their axis being parallel to that of the large spot at the end of the discoidal cell, whereas in flavescens the spot in cellule 5 is strongly displaced towards the base. The same difference applies exactly to the proximal spots in cellules 5 and 6 of the hindwing.

FEMALE

As above, but forewing apex slightly more rounded, blue areas above somewhat reduced and a little darker.

Holotype ♂. Sekoke Forest, Kilifi, Coast Province, Kenya, IV-1957, J.G. Williams.

Allotype ♀. Same data as above.

One Paratype ♂ and one Paratype ♀, same data as above, in Coryndon Museum, Nairobi.

Holotype and Allotype to be deposited in British Museum (Nat.Hist.).

The nearest recorded locality for the nominate race (Chintechi, Nyasaland), is 750 miles from the type locality of A. flavescens williamsi and so far no intermediate records are known.

The type specimens of the nominate race have incomplete hindwings and it should therefore be stated that both races of Aphnaeus flavescens have veins 1b and 2 of the hindwing produced into long, black, white tipped tails, the one at 1b being the longer. The author has had the opportunity of examining a perfect specimen of the nominate race recently collected at Chintechi by Mr. D. Gifford of the Royal Scottish Museum, as well as the type series of williamsi.

APHNAEUS CORONAE Talbot, LITTORALIS, ssp. nov.
(Lycaenidae, Aphnaeinae)

MALE

Upperside

Blue areas paler, less brilliant than in nominate race. Blue spots in cell absent, spot at end of cell white, not blue. Orange scales and cilia near tornus of hindwing less conspicuous than in nominate race.

Underside

Similar to nominate race but silvery spots generally smaller. Large silvery streak in distal half of cellule 1b of forewing, absent in littoralis and replaced by a minute, indistinct fuscous ring.

FEMALE

Similar to above, but larger and slightly paler.

Holotype ♂. Sekoke Forest, Kilifi, Coast Province, Kenya, IV-1960, J.G. Williams.

Allotype ♀. Same locality and collector, IV-1957.

One Paratype ♂ same data as Holotype, in Coryndon Museum, Nairobi.

Holotype and Allotype to be deposited in British Museum (Natural History).

The nominate race occurs in the southern Sudan and in northern Uganda, some 500 miles from the known range of A. coronae littoralis.

ACLEROS SANGOANUS sp. nov. (Hesperidae)

MALE

Antennae. Black above; a minute white distal ring on each segment. Below paler, some white scales on club, apical hook brown.

Head. Black above, palpi missing; greyish white below.

Thorax. Blackish brown above, greyish white below.

Abdomen. Above, blackish brown proximally, silvery white distally. Greyish white below.

Legs. Greyish white, tibiae and tarsi tinged with buff.

Upperside

Very dark uniform brown, nearly black. Cilia of forewing brown; cilia of hindwing brown from costa to vein 6, white from vein 6 to inner margin, particularly long and conspicuous near tornus.

Underside

Very similar to A. neavei Evans, but lacking pale spot near costa of forewing.

Forewing. Blackish brown, somewhat paler near apex of outer margin. A large pale grey area occupying cellules 1a and 1b excepting the outer margin where dark ground colour forms a marginal band which terminates in a point at the end of vein 1a. A raised area of long, tightly packed pale golden scales parallel to cubitus, near base of cellule 1b.

Hindwing. Slightly vinaceous light brown mixed with white scales from costa to vein 6. Remainder of wing very pale grey, sparsely irrorated with very pale buff. Buff irrorations absent near inner margin.

Measurements. Forewing, base to apex, 11 mm.

Genitalia. Tegumen short and blunt. Uncus long and slender with apical downward hook. A very prominent dorsal spur near base of uncus. Aedeagus long and slender. Juxta long and slender. Valves long and spatulate.

FEMALE

Unknown.

Holotype ♂. Katera, Sango Bay, Masaka, Uganda, X-1960, R.H. Carcasson, to be deposited in British Museum (Nat.Hist.).

PRECIS RAUANA Grose-Smith (Novit.Zool. 5, p. 352, 1898)
(Nymphalidae, Vanessinae)

As the result of further investigation into this species, it would appear that the type locality of the nominate race is in the Nandi district of western Kenya. Precis rauana kakamega Carcasson (Coryndon Mus.Oc.Pap. No. 7, 1961) is therefore a synonym of Precis rauana rauana Grose-Smith, the west Uganda - east Congo race being P. rauana osborni (Holland), originally described as Kallimula osborni (see Holland, Bull.Am.Mus.Nat.Hist., Vol. 43, 1920, p. 150) and the west Congo - Cameroons race being P. rauana omissa Rothschild (Novit.Zool. 25, pp. 338 - 348, 1918).

(Received for publication 10th December 1963)

NATURE NOTES

Another New Tree Record for Kenya

Several years ago a specimen of Sterculia dawei Sprague was received at the East African Herbarium for naming.

It is clearly distinguished from the other species of Sterculia mentioned in 'Kenya Trees and Shrubs' by its oblong leaves which are cordate at the base and not lobed in any way; the apex is very obtuse and the venation pinnate. It attains 90 feet in height.

KENYA. Elgon-Nyanza, Marach Location, 14th. March 1960, J.K. Ammonds in EA H 86/60 (EA): tree (unknown to local residents) which grew from 4 ft. to 30 ft. in three years, certainly growing wild.

B. Verdcourt. 16/4/63

A Note on Adiantum pedatum Peter.

In my short account of the maidenhair ferns of East Africa (this journal, 24: 37 - 40 (1962)) I threw doubt on Peter's A. pedatum. Since then I have found this species in the Gombe Stream Chimpanzee Reserve at Kasakela in the Buha District of Tanganyika (Verdcourt 3359). It was plentiful in forest undergrowth and is no doubt common in the area. Peter's own material came from the Buha District. There are, however, complications. Peter's name (1929) cannot be used because of a much earlier A. pedatum L. (1753). The name had also been used on two other occasions before Peter used it, so is thrice preoccupied. I am not, however, coining a new name for the plant since it seems probable that there is a valid earlier name. Its relationship to A. patens Willd. needs investigation; the fern collection of the East African Herbarium is quite inadequate for this work. I also found A. philippense L. to be common with A. pedatum Peter but no trace of his A. alatum could be discovered. Alston (The Ferns and Fern-Allies of West Tropical Africa, 1959, p. 38) sinks this into A. soboliferum Wall. ex Hook., a species which is widespread in tropical Africa and Asia. Every effort should be made to collect the ferns in the forest areas north of Kigoma.

It should be mentioned also that the name A. cuneatum Langsd. and Fisch. can not be used because of an earlier A. cuneatum Forst. The next available name is A. raddianum Presl. I am grateful to Dr. R.M. Tryon for some of the above comments made to me during his recent visit to East Africa.

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